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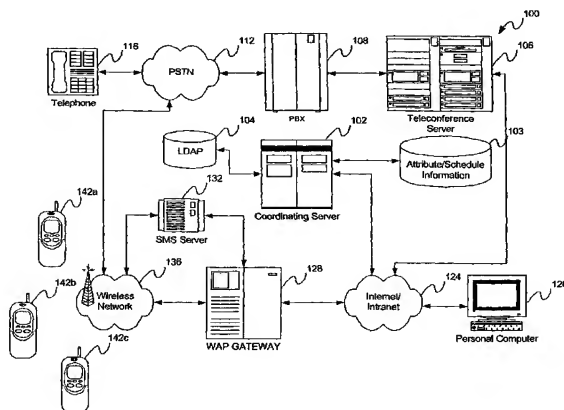
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(54) Title: METHOD AND SYSTEM FOR COORDINATING AND INITIATING CROSS-PLATFORM TELEPHONE CONFERENCES AND RECONNECTING TERMINATED AND DROPPED CALLS TO CROSS-PLATFORM TELEPHONE CONFERENCES



(57) Abstract: A method and system for remotely accessing a multi-point cross-platform telephone conferencing system for coordinating and initiating multi-point telephone conferences utilizing intelligent agents and network based software application modules (i.e., contact lists, email, calendars, etc.) to facilitate the setup and initiation of telephone conferences from remote locations. The intelligent agents and network based software application modules detect disconnections and facilitate the reconnection of remotely located parties who have been disconnected from the telephone conference prior to its conclusion. A coordinator, using software agents resident on a coordinating server device (102) and menu screens resident on the networked terminal device (120) selects subscribers for inclusion in the telephone conference, inputs attribute data and contact information for non-subscribers to be included in the telephone conference and inputs an identifier, proposed times and duration for the proposed telephone conference. The software agents analyze the conference information, the subscriber and non-subscriber attribute data and the available schedule information and generates/forwards invitations.



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**METHOD AND SYSTEM FOR COORDINATING AND INITIATING
CROSS-PLATFORM TELEPHONE CONFERENCES AND
RECONNECTING TERMINATED AND DROPPED CALLS
TO CROSS-PLATFORM TELEPHONE CONFERENCES**

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BACKGROUND OF THE INVENTION

Related Applications

This application is a continuation-in-part of U.S. Application No. 09/481,341 filed January 12, 2000, now pending, the entire contents of which are hereby incorporated herein by reference.

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Field of the Invention

The present invention relates to a method and system for coordinating and initiating a multi-point telephone conference which can be initiated by one of the participants from a remote device such as a wireless communication device. More specifically, the invention relates to a method and system designed for use in setting up and initiating a multi-point telephone conference with assistance from network based software agents capable of accessing, utilizing and downloading information to wireless communication devices from network-based software applications (e.g., calendars, contact lists, email lists etc.). The invention also relates to a method and system for coordinating and initiating the reconnection of terminated and dropped calls to a multi-point telephone conference.

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Description of the Related Arts

Webster's Dictionary defines the term *meeting* as a coming together; a gathering. Meetings play an integral part in our social and organizational interactions. Advances in computer and communications technology have effectively removed geographic barriers that hindered meetings between geographically separated individuals and organizations in the past. The explosion of the Internet and the availability of low cost network-compatible wireless communication devices (e.g., cellular phones, PDAs, two-way pagers, etc.) makes it possible for individuals and organizations to

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communicate using a variety of media (e.g., voice, email, short message service (SMS), etc.) regardless of the geographic locations of the participants. It is predicted that by the year 2005 there will be one billion wireless communication devices carried on the persons of individuals who will be accessible virtually any place and any time.

Many companies in the late 80's and early 90's began emphasizing horizontal problem solving in corporate planning as opposed to hierarchical decision making which meant more planning done in more meetings and brainstorming sessions comprised of large groups of people. Around this same time corporations and organizations sought methods and systems which would allow remote parties to actively participate in these sessions. In response, telecommunications companies began offering audio teleconferencing services.

In the early 1990's the methodology used for multi-point telephone conference calls was based on public branch exchange (PBX) conference bridges. These systems required trained operators and on-premises dedicated equipment and were cost prohibitive for all but the largest companies. The primary problem with PBX conference bridges was that one individual had to be physically at a telephone attached to the PBX for the system to work. Setting up telephone conferences during non-business hours proved to be especially troublesome.

To meet the increasing demand for telephone conference calls, teleconference service bureaus were established which enabled small businesses and individuals to access these services from third party providers for a fee. To use this service, all the contact information for all participants had to be provided to the third party provider hours or days before the scheduled teleconference and the participants had to call in to a predetermined number at a scheduled time. Operators handled participant notification and call setup and these systems provided little flexibility for changing contact information.

Some present day teleconferencing services provide Internet/Intranet based automated conference setup services that facilitate the setup of

conference calls with the assistance of web-based user interfaces and interactive voice response units. In these systems the user usually requires advanced knowledge of the contact information for the conference participants. For example, a user would generally have to provide an email address or
5 phone number which is used to propose the telephone conference and provide the participants with instructions for joining the conference call.

The ultimate purpose of teleconferencing systems is to facilitate simultaneous communications between a plurality of participants who are geographically separated. As with any meeting, the required participants have
10 to be notified in advance of the time and the topic of interest for a proposed telephone conference meeting. The problem of coordinating and initiating such conference calls is compounded when one or more of the required participants is off-site and has a plurality of associated contact identifiers. For example, it is not uncommon for individuals to have multiple email addresses, a home phone
15 number, a work phone number, a mobile phone number, a SMS contact identifier, etc. This situation is further complicated when the teleconferencing system is required to coordinate a cross-platform telephone conference call with terminal devices (i.e. land based phones, wireless devices, IP phones, etc.) operating on different types of communication networks. Cross-platform
20 telephone conferencing systems and so-called intelligent agents are available but they generally require dedicated server devices and associated software costing tens of thousands of dollars which would make them unappealing to many small businesses and individual users desiring to use this type of service.

For various reasons, either intentional or non-intentional, one or more of
25 the participants in a multi-point telephone conference may have their communications link terminated. For example, a participant may wish to leave the conference at a particular point or a participant using a wireless communication device may encounter poor reception in a cellular service area resulting in a dropped communications link. In either case, the affected
30 participant may desire to rejoin the original multi-point telephone conference in progress or rejoin an associated multi-point telephone conference.

What is needed is a method and system which enables users of wireless communication devices to access cross-platform telephone conference services and to functionally interact with the control features of a cross-platform telephone conference server systems from a remote location for the purpose of coordinating and initiating telephone conference meetings and for reconnecting disconnected users to multi-point telephone conferences which are in progress.

SUMMARY OF THE INVENTION

An object of the present invention is therefore to provide a method and system for remotely accessing a cross-platform telephone conference system for the purpose of coordinating and initiating multi-point telephone conference meetings. More specifically, the present invention utilizes intelligent agents and network based software application modules (i.e., contact lists, email, calendars, etc.) to facilitate the setup and initiation of telephone conference calls from locations remote to the telephone conference server and associated equipment.

In accordance with an embodiment of the present invention, a coordinating server device including an interactive voice response unit (IVRU) and a storage means for storing attribute data, contact information and schedule information for a plurality of subscribers is remotely accessed using a networked terminal device (i.e., a personal computer, a cellular phone, a PDA, etc.) by a coordinating subscriber (referred to as the coordinator hereafter) for the purpose of proposing a multi-point telephone conference. The coordinator, with the assistance of software agents resident on the coordinating server device and menu screens resident on the networked terminal device, selects subscribers for inclusion in the telephone conference (with or without information modification), inputs attribute data and contact information for non-subscribers to be included in the telephone conference and inputs descriptive information including an identifier, proposed times and duration for the proposed telephone conference. The software agents analyze the conference

information, the subscriber and non-subscriber attribute data (which may include information relating to the various terminal devices associated with particular subscribers/non-subscribers) and the available schedule information for the selected participants and generates/forwards appropriately formatted
5 invitations to those invited. Subscriber/non-subscriber responses to the invitations are forwarded to the coordinating server device and the coordinator's terminal device.

In response to the received responses from the subscribers and non-subscribers, the coordinating server device generates and stores a control
10 script for a pre-designated telephone conference server in association with coordinator identification information and the telephone conference identifier. To initiate the telephone conference the coordinator accesses the coordinating server device, selects the identifier for the previously stored telephone conference and inputs a pre-designated key sequence (e.g., depresses a
15 softkey labeled conference, enters a PIN, etc.). Additionally, the coordinator may input scheduling information for the multi-point telephone conference which would enable the telephone conference server to automatically initiate contact with the selected participants at a pre-determined time.

According to another aspect of the present invention, the coordinating
20 server device includes storage means for storing a Lightweight Directory Access Protocol (LDAP) software module. This software module provides limited access to network based client applications and other server devices for the purpose of retrieving subscriber and non-subscriber attribute and schedule information to be used in generating telephone conference invitations and
25 conference initialization.

According to another aspect of the present invention, when it is detected that one or more of the participant communication links have been terminated in a multi-point telephone conference, prior to the end of the conference (or a time window associated with the end of the conference), a determination is
30 made as to whether the disconnected participant or participants should be reconnected. An exchange of information between the disconnected

participant or participants and a central server device may be used to determine if and when to reconnect. An additional determination may also be made as to whether the disconnected participant or participants should be connected to the telephone conference they were disconnected from or an associated telephone conference.

The foregoing and other objects, features and advantages of the invention will become more apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of a communications system which may be used to implement a method and system embodying the invention.

Figures 2A and 2B illustrate a representative wireless communication device which may be used in conjunction with the implementation of the present invention.

Figure 3 illustrates a representative server and associated software modules which may be used in conjunction with the implementation of the present invention.

Figures 4A to 4C illustrate representative graphical user interface screens which may be used to input conference and participant information in conjunction with the implementation of the present invention.

Figures 5A and 5B illustrate representative menu display screens for an exemplary wireless communication device which displays information relating to previously stored telephone conferences in conjunction with the implementation of the present invention.

Figure 6 illustrates representative schedule display screens for a subscriber in conjunction with the implementation of the present invention.

Figure 7 illustrates a representative menu display screens for an exemplary wireless communication device which displays information relating to participant invitation responses in conjunction with the implementation of the present invention.

Figure 8 is flow diagram of the process associated with building, editing and proposing a telephone conference in conjunction with the implementation of the present invention.

Figures 9A and 9B are flow diagrams of the process associated with
5 initiating a previously stored a telephone conference in conjunction with the implementation of the present invention.

Figures 10A and 10B illustrate a representative menu display screen for an exemplary wireless communication device which displays information associated with a request for reconnection in conjunction with the
10 implementation of the present invention.

Figures 11A and 11B are flow diagrams of the process associated with reconnecting disconnected participants in accordance with an embodiment of the present invention.

15 DETAILED DESCRIPTION

The invention pertains to a method and a system for coordinating and initiating cross-platform multi-point telephone conferences (also referred to as telephone conferences herein) using remotely located terminal devices, software agents and remotely stored participant information (i.e., information
20 contained in association with network based calendar, email and scheduling applications).

Terminal devices, also referred to as networked terminal devices herein, include but are not limited to personal computers, laptop computers, computer terminals, personal digital assistants, palm-sized computing devices, and
25 networked wireless communications devices such as micro-browser enabled cellular telephones. Such devices typically have a user interface comprised of a display, an input interface (i.e., a keypad) and a pointing device (e.g., a mouse, a trackball, a joystick, a navigation key-set or a touch-pad).

In the following detailed description of the present invention, numerous
30 specific details are set forth in order to provide a thorough understanding of the present invention. However, it will become apparent to those skilled in the art

that the present invention may be practiced without these specific details. In other instances, well known methods, procedures, components, and circuitry have not been described in detail to avoid unnecessarily obscuring the novel aspects of the present invention.

5 The detailed description of the present invention is presented largely in terms of procedures, steps, logic blocks, processing, and other symbolic representations that resemble data processing devices coupled to networks. These process descriptions and representations are the means used by those experienced or skilled in the art to most effectively convey the substance of
10 their work to others skilled in the art.

 The present invention is a method and system, which will allow the user of a terminal device to coordinate and initialize a multi-point telephone conference from a remote location. The method along with the system to be described in detail below is a sequence of processes or steps leading to a
15 desired result. These operations or processes are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities may take the form of electrical signals capable of being stored, transferred, combined, compared, displayed and otherwise manipulated in a computer system or electronic computing devices. It proves convenient at
20 times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, operations, messages, terms, numbers, or the like. It should be borne in mind that all of these similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities. Unless specifically stated otherwise as
25 apparent from the following description, it is appreciated that throughout the present invention, discussions utilizing terms such as "processing" or "computing" or "verifying" or "displaying" or the like, refer to the actions and processes of a computing device that manipulates and transforms data represented as physical quantities within the terminal device's registers and
30 memories into other data similarly represented as physical quantities within the computing device or other electronic devices.

Figure 1 shows a basic system configuration in which the present invention may be implemented in accordance with a preferred embodiment. Cross-platform communications system **100** generally includes a plurality of communications networks such as public switched telephone network (PSTN) **112**, Intranet/Internet **124** and wireless network **136**. These communications networks support communications between a plurality of diverse terminal devices as illustrated by telephone **116**, personal computer **120** and wireless communication devices **142a**, **142b** and **142c** having differing communication protocols and operational parameters. Server devices such as Wireless Access Protocol (WAP) gateway **128** facilitate intra-network communications. Server devices such as coordinating server **102**, teleconference server **108**, and Short Message Server (SMS) server **132** perform service functions for the various terminal devices as will be described below.

Coordinating server device **102**, which may be a network connected SUN workstation, includes storage means **103** for storing attribute data, contact information and schedule information for a plurality of subscribers and any associated software applications. Additionally, coordinating server device **102** includes storage means for storing a Lightweight Directory Access Protocol (LDAP) software module which facilitates limited access to subscriber and non-subscriber information not contained within the domain of the coordinator assigned files. The LDAP software module provides a means for getting information from different vendor applications (i.e., such as email and contact lists) and databases which may be resident on diverse platforms.

The description of coordinating server device **102** provided above is provided for purposes of illustration and not limitation. It would be understood by one of skill in the art that the present invention may be practiced in a computer system having single or multiple processing units, and system components that differ from those described above.

Coordinating server device **102** receives input from a coordinator associated with a proposed multi-point telephone conference. Software agents resident within the memory of coordinating server device **102** generate

invitations for the requested participants using the input received from the coordinator and any associated participant information (i.e., attributes and schedules) which may be stored on the coordinating server device **102** or on an accessible remote server device (not shown). The generated invitations
5 may be forwarded to the selected participants using a voice channel (wireless or land-based) and an IVRU, using a paging communication system, using SMS server **132** and the associated narrowband channel or via e-mail. The coordinating server device **102** receives responses from the invited telephone conference participants and generates/stores a script which may be utilized at
10 a future time to direct the operation of teleconference server **106** in conjunction with further instructions from the multi-point telephone conference coordinator.

Teleconference server **106** functions to coordinate audio communications with the plurality of invited participants when the telephone conference commences. Upon commencement of the telephone conference
15 telephone conference server **106** can be instructed to automatically contact those participants who responded positively to the conference invitation or can coordinate the meeting as the participants join the multi-point telephone congress in progress. Teleconference server **106** establishes audio circuits to the specified terminal devices via PBX **108** and PSTN **112**. Additionally,
20 telephone conference server **106** may provide utilities for adding and/or subtracting participants while the multi-point telephone conference is in progress.

SMS server **132** provides a convenient means to deliver conference related text and voice messages (via the IVRU) to invited participants
25 associated with wireless communication devices such as wireless communication devices **142a**, **142b** and **142c**. Participants receiving invitations in this manner could also be presented with menu screens that simplify the acknowledgment process.

Consider a scenario in which a coordinator wishes to propose a multi-
30 point telephone conference with a plurality of participants for which some information is known, such as a name identifier and some form of contact

information. Successful coordination and initialization of the multi-point telephone conference from a location remote to that of an associated teleconference server (i.e., teleconference server **106** of **Figure 1**) implies the confluence of four conditions, namely:

- 5a) the selected participants have access to a terminal device,
- b) the coordinator has provided the correct contact information for the particular terminal devices for which the selected participants have access,
- c) the coordinator is able to initiate communication to the particular terminal device or devices (either directly or through an intermediate server device)
- 10 which are accessible to the selected participants at the time of invitation delivery, and
- d) the activities of the coordinator, the participants and the associated teleconference server can be coordinated at the appointed time of the multi-point telephone conference from the respective locations of all parties involved.

15 However, in this current era of communication diversity, it would not be unusual for one or more of the selected participants to have multiple terminal devices (e.g., a cell phone, a pager, a networked connected computer, and multiple land lines) and time sensitive contact information.

 In accordance with an embodiment of the present invention, when a
20 coordinator proposes a multi-point telephone conference to a plurality of selected participants, the coordinator inputs the available participant information. If one or more of the selected participants subscribes to the same network resources (i.e., belongs to the same cyber-community) as the coordinator then software agents resident on the coordinating server device
25 (i.e., coordinating server device **102** of **Figure 1**) compare the information provided by the coordinator with the information associated with the network resources for the selected participants and either retrieve the participants' recommended contact and attribute information or utilize the default information provided by the coordinator. The network resources may be
30 comprised of a network-based organizer, an email program, a contact list or any similar network-based client applications and/or databases. The network

resources and client applications of non-subscribing selected participants may be accessed and utilized in a similar fashion as those of subscribing participants with the assistance of the LDAP software module.

The coordinator can propose and/or initiate a multipoint telephone
5 conference from any of the terminal devices associated with the cross-platform communications system **100**. Using a land-based telephone **116**, the coordinator may access the coordinating server device **102** via a standard switch telephone network and associated connection circuitry (not shown in **Figure 1**). Using a personal computer **120**, the coordinator may access the
10 coordinating server device **102** using a TCP/IP or similar type network such as Internet/Intranet **124**. Using a wireless communication device such as **142a**, the coordinator may access the coordinating server device **102** via wireless network **136** (e.g., CDMA, TDMA, PHS, GPRS, GSM wireless networks, etc.) and WAP gateway **128**.

15 **Figures 2A** illustrates a representative wireless communications device **200** (i.e., a cellular phone) which may correspond to one of the wireless communication devices (i.e., **142a**, **142b** or **142c**) represented in **Figure 1**. Wireless communication device **200** includes a display screen **202**, a speaker **204**, a microphone **206**, and a user interface **208** including alphanumeric input
20 elements, control keys and soft keys. Wireless communication device **200** is capable of processing binary language files and/or markup language files (e.g., HDML, WML, XML, SGML, cHTML and HTML) particularly suited for the resources/capability of the device in question and the networked server devices with which wireless communication device **200** interacts.

25 With reference now to **Figure 2B**, wireless communications device **220** (which may be wireless communications device **200** of **Figure 2A**) illustrates the functional components of a wireless communication device which may be used in conjunction with the practice of the present invention. Wireless communication device **220** includes CPU and/or smart card **222**, display
30 circuitry **224**, keypad circuitry **228**, modulating/demodulating circuitry **232**, encoding/decoding circuitry **236**, a device memory for storing among other

things a micro-Browser for processing binary language files and/or markup language files and a device identity module **244**.

Coordinators and participants can utilize wireless communication devices (i.e., wireless communication device **200** of **Figure 2A**) to interact with the coordinating server device for the purpose of proposing multi-point telephone conferences, initiating telephone conferences and responding to invitations. The binary language files and/or markup language files provide menu screens and softkey assignments which facilitate the above-described functionality when interacting with a remote server device such as coordinating server device **102** of **Figure 1**.

Figure 3 illustrates a coordinating server device **300** which may be coordinating server device **102** of **Figure 1**. Coordinating server device **300** includes one or more community client applications (i.e., calendar application **312** and address/phone book application **316**) and dedicated storage areas for individual subscribers. In accordance with an embodiment of the present invention, subscribers may be granted limited access to the dedicated storage areas assigned to other subscribers for the purpose of retrieving/confirming information (i.e., contact information and attributes) associated with participants who have been selected to participate in a proposed telephone conference.

Coordinating server device **300** also includes several functional software modules/agents which facilitate communication between local and remote applications and devices. LDAP software module **318** facilitates the limited access, provided to non-dedicated storage areas assigned to other subscribers. Additionally, LDAP software module **318** may provide similar limited access privileges to server devices and client applications assigned to subscribers associated with other cyber-communities (i.e., networked client applications assigned to subscribers on non-associated server devices).

Conference setup/administration software module **324** processes the coordinator input and replaces coordinator provided participant attribute/ call information with participant provided attribute/ call information where required. For example, if a coordinator provides a work phone number for a selected

participant and the participant indicates in his or her dedicated area an alternate phone number for particular times in question, then the conference setup/administration software module **324** may replace the coordinator provided phone information with the participant provided phone information.

5 Teleconference server connection application **308** generates and manages a script for teleconference server control based on the input/content received from the various sources including coordinator input and information retrieved from participant dedicated storage areas. The generated script is stored until the telephone conference is initiated by the coordinator, at which
10 time it is forwarded to the teleconference server that is managing the associated telephone conference.

Figures 4A to 4C illustrate a series of representative user interface screens which may be used by a coordinator to input information from a terminal device (e.g., a personal computer) in conjunction with the
15 implementation of the present invention. Referring to **Figure 4A**, the user interface screen **400** includes a button bar **404**, a conference information section **408** and a time scheduling/retrieval mode section **412**. Button bar **404** is comprised of a plurality of buttons (i.e., <Save>, <New>, <Call>, <Print>, <Propose> and <Close>)) which are associated with assigned application-
20 level functions. These buttons and their assigned functions are typically activated through an interaction with a pointing device (e.g., a mouse, a track ball, a touch pad etc.).

 Graphical user interface screen **400** facilitates coordinator input of conference information (i.e., conference title, conference scheduling
25 information, participant identifiers and participant contact information). The coordinator, inputting the conference information for a given telephone conference, has the option of supplying one or more default contact identifiers to be used in the invitation and/or conference initialization process or of having the coordinating server device software agents (coordinating server device **102**
30 of **Figure 1**) retrieve participant contact information based on the participant identifiers provided using the <SMART LOOK> option shown in section **412**. If

the <SMART LOOK> option is selected then the coordinating server device software agents will retrieve contact information from the selected participant's designated storage areas (i.e. the participant's daily schedule). If the coordinating server device software agents are unable to retrieve the required contact information from the participant's storage areas then the default contact information provided by the coordinator or contact information retrieved from the coordinator's dedicated storage areas may be used in the process of conference notification and/or initiation. If the coordinator provides multiple default contact identifiers then the system will serially make contact attempts until a positive response is achieved or the process times out.

Another option shown in Section 412 is the <SUBGROUP> option. If the <SUBGROUP> option is selected for two or more of the conference participants then the coordinating server device software agents will associate those selected conference members for subsequent cross-platform telephone conferences. In the example provided, the <SUBGROUP> option is selected for <Spasky>, <Fisher>, and <Pi>, thereby facilitating the setup and initiation of a subsequent cross-platform telephone conference which may be scheduled to begin at a given time or initiated by one of the selected participants and/or the coordinator. It is important to note at this point that contact between participants having the <SUBGROUP> option selected may be initiated between any member of the subgroup and any other member of the subgroup even if the contacting member lacks contact information for the contacted member(s). For example, a second cross-platform telephone conference could be held between <Spasky>, <Fisher>, and <Pi> after these conference members leave the first conference. The coordinator can set up this second conference without releasing any contact information (i.e., phone numbers) to the participating members thereby preserving some degree of privacy for the participants. Additionally, this feature can be enabled for selectable time periods (e.g., enabled for two hours after the previous conference or enabled between 10AM and 1PM for the week of the previous conference).

The coordinator, in the scenario illustrated in **Figure 4A**, has provided conference information for a telephone conference labeled <Chess Club Meeting>. The coordinator has provided identifiers for all the selected participants, and default contact information for the participants identified as <Spasky>, <Fisher>, <Carpenter> and <Aronofsky>. The <SMART LOOKUP> option is selected for all the selected participants with the exception of <Aronofsky> for whom the default number will be used for all communications. Only identification information is provided for the selected participant labeled <Pi> therefore contact information will have to be retrieved by the coordinating server device software agents from files associated with <Pi>, the coordinator or a central lookup file. For the others, contact information retrieved by the coordinating server device software agents or the default numbers will be used.

Referring to **Figure 4B**, graphical user interface screen **420** illustrates a representative interface by which a coordinator could access network-based client applications (i.e., phone book **428**, calendar **432**, contact list **436**, email application **440**) and any associated databases for the purpose of retrieving participant information. Local files resident on the terminal device or accessible through an associated network may be accessed using the <Browse> function **444**. The selected participants may have similar network-based client applications resident on the same server device or on an accessible server device. Contact information and schedules for the participants and the coordinator may be held in data files associated with these network-based client applications. This information may be used in the telephone conference setup process and in conference initiation.

Referring now to **Figure 4C**, graphical user interface screen **454** illustrates a representative interface that could be used by a coordinator to transfer information from the coordinator's network files to the conference setup applications.

The graphical user interface screens illustrated in **Figures 4A to 4C** are provided for purposes of illustration and not limitation. It would be understood by one of skill in the art that the present invention may be practiced using user

interfaces and terminal devices that differ from those described above. For example, the telephone conference can be set up using a wireless communication device (i.e., a cellular phone) and graphical user interface screens that are appropriately suited to that type of terminal device as is
5 illustrated in **Figures 5A and 5B**.

Referring to **Figure 5A**, wireless communication device **500** illustrates a representative terminal device which may be used by the coordinator (or a participant) to interact with the coordinating server device (which may be coordinating server device **102** of **Figure 1**). Display screen **504** contains a
10 representative display which provides the operator associated with wireless communication device **500** with information about previously setup telephone conferences. In this example, the coordinator could initiate the <CHESS CLUB> by activating the soft key associated with the <GO> label.

Referring now to **Figure 5B**, screen display **510** illustrates an exemplary
15 invitation which may be received by one of the selected telephone conference participants. Screen display **510** provides descriptive information, the proposed primary and secondary start times and the conference's estimated duration. A participant could accept the primary time by activating the soft key associated with the <PRIM> label, the secondary time by activating the soft key
20 associated with the <SEC> label or decline by activating the soft key associated with the <NO> label.

Figure 6 illustrates an exemplary schedule that may be maintained by the participants or the coordinator. Using the information contained within the software agents resident on the coordinating server device can determine the
25 participants' or coordinator's preferred contact information for specified time periods.

Responses to telephone conference invitations are received by the coordinating server device which formulates a control script for the teleconference server (which may be teleconference server **106** of **Figure 1**).
30 Additionally, content relating to the response received by the coordinating

server device may be forwarded to a terminal device associated with the coordinator as is illustrated in **Figure 7**.

Figure 8 is a flow diagram of the process **800** associated with setting up a telephone conference. At **802** a coordinator wishing to propose a telephone conference accesses the telephone conference setup application resident on the coordinating server device by inputting the appropriate uniform resource locator (URL) or similar location address. At **804** the coordinator creates a new telephone conference or selects an existing telephone conference to modify. At **806** the coordinator inputs the telephone conference information or modifies existing telephone conference information. At **808** a determination is made as to whether the information provided by the coordinator and the information retrieved by the resident software agents has been processed. Upon completion of processing, a determination is made at **810** as to whether the coordinator wishes to forward the invitations to the selected participants. If the coordinator decides in the affirmative then the invitations are forwarded at **812**. At **814** a determination is made as to whether the generated telephone conference profile information should be saved. At **816** telephone conference profile information to be saved is provided with an identifier and the process is concluded.

Figure 9A is a flow diagram of the process **900** associated with processing the responses from the participants, forwarding the received information to the coordinator and receiving final instructions from the coordinator. At **902** a determination is made as to whether all the responses have been received from the selected participants or if a pre-established time limit for receipt of those responses has expired. Upon receipt of all the responses or expiration of the pre-determined time interval, the responses are processed and the processed information is forwarded to the coordinator at **904**. At **906** a determination is made as to whether the final instructions/conformation has been received from the coordinator. At **908** the coordinator may select timed initiation **910** of the telephone conference or

manual initiation **912**. At **914** the control script for the telephone conference server is generated and forwarded and the process is concluded.

Figure 9B is a flow diagram of the process **916** associated with manual initiation of the telephone conference from the coordinator's terminal device. At **918** the coordinator selects a telephone conference to initiate and activates the appropriate input element on the user interface associated with the terminal device at **920**. An instruction is forwarded to the coordinating server device at **922** which forwards a control script to the telephone conference server. The telephone conference server then initiates calls to the selected participants and the coordinator.

While cross-platform telephone conferences are in progress, one or more of the participants may have their communications link to the conference terminated. This termination may be intentional or unintentional. A participant may intentionally terminate their connection by hanging up or turning off their terminal device. Unintentional terminations may occur for any number of reasons. For example, a participant using a wireless communication device (i.e., a cell phone) may encounter a bad cell area as a result of interference or reduced device power levels (i.e., a drained battery). The teleconference server (i.e., teleconference server **106** of **Figure 1**) senses the terminated connection and forwards a notification message including identification information to the coordinating server device (i.e., coordinating server **102** of **Figure 1**). The coordinating server makes a determination as to if, when and how to reconnect those disconnected participants. The coordinating server device may make this determination with or without interaction with the conference coordinator or the affected participants. Previously-stored instructions may coordinate the reactions of the coordinating server to this occurrence.

Reconnection of a disconnected participant or a plurality of participants is accomplished using the same methodology described above for conference initiation. Specifically, a script particular to the disconnected participant or participants is generated and forwarded to the teleconference server. The

teleconference server then attempts to facilitate the reconnection of the disconnected participant or participants in accordance with the received instructions.

Referring to **Figure 10A**, the content resident on screen display **1002A** illustrates an exemplary notice which may be received by a terminated participant. This content informs the participant that the communication link to the telephone conference has been terminated and gives the participant the option to reconnect. A participant could choose to reconnect by activating the soft key associated with the <YES> label or decline by activating the soft key associated with the <NO> label.

Referring now to **Figure 10B**, the content resident onscreen display **1002B** illustrates an exemplary notice which may be received by a participant wishing to reconnect to the original telephone conference or an associated telephone conference (i.e., a subgroup telephone conference). The <CONNECT NOW> option would attempt to reconnect the disconnected participant to the original conference immediately. The <SCHEDULE LATER> option would attempt to reconnect the disconnected participant to the original conference at a scheduled time. The <SUBGROUP> option would attempt to reconnect the disconnected participant to an associated telephone conference.

Figure 11A is a flow diagram of the process **1100** associated with generating a reconnection notice for disconnected conference participants. At **1104** an event associated with the disconnection of a conference participant is detected. At **1108** a determination is made as to whether the conference has concluded or is about to conclude. If the conference has not concluded (or is not about to conclude), contact information for the disconnected participant is retrieved at **1116**, a reconnection message is generated at **1120**, and the generated reconnection message is forwarded to the disconnected participant at **1124**.

If the conference is terminating (or is about to terminate) a determination is made at **1112** as to whether the disconnected conference participant is assigned to a subgroup. If the disconnected conference participant is not

assigned to a subgroup, then the process is concluded. If the participant is assigned to a subgroup, then contact information for the disconnected participant is retrieved at **1116**, a reconnection message is generated at **1120**, and the generated reconnection message is forwarded to the disconnected participant at **1124**.

Figure 11B is a flow diagram of the process **1130** associated with reconnecting disconnected conference participants in accordance with responses received from the subject participants. At **1134**, a response to the reconnection notice is received from the disconnected conference participant. At **1138** and **1142**, determinations are made as to whether or not to connect to the original conference or a subgroup conference respectively. At **1146** and **1150**, determinations are made as to whether the disconnected conference participant should be reconnected now or at some future time. In either event, the current/available contact information is retrieved (**1158**) at the time when reconnection is initiated and reconnection is initiated (**1162**).

The many features and advantages of the present invention are apparent from the written description, and thus, it is intended by the appended claims to cover all such features and advantages of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation as illustrated and described. Hence, all suitable modifications and equivalents may be considered to fall within the scope of the invention.

I claim:

1 1. In a multi-point telephone conferencing system including storage areas
2 for storing contact information and schedule information for a plurality of
3 participants, a multi-point telephone conference server and access to wireless
4 and wired communication networks, a method for setting up a multi-point
5 telephone conference between a plurality of participants, the method
6 comprising:

7 receiving scheduling information for a multi-point telephone conference
8 including identification information for a plurality of selected participants and
9 timing information from a coordination terminal device;

10 matching the received identification information for the plurality of
11 selected participants with the contact information and schedule information
12 storage areas for the selected plurality of participants;

13 retrieving contact information corresponding to the timing information
14 received for the multi-point telephone conference from the selected participant
15 contact information and schedule information storage areas;

16 generating and storing a control script for the multi-point telephone
17 conference server; and

18 forwarding the stored control script to the multi-point telephone
19 conference server.

1 2. A method as recited in claim 1, wherein the coordination terminal device
2 is selected from a group consisting of a wireless communication device, a
3 personal computing device and a POTS-type telephone device.

1 3. A method as recited in claim 1, further comprising;
2 generating invitations containing information relating to the multi-point
3 telephone conference for the plurality of selected participants;
4 retrieving contact information for forwarding the generated invitations,
5 where the contact information is retrieved from the contact information and

6 schedule information storage areas for the selected plurality of participants;
7 and
8 forwarding the generated invitations to the plurality of selected
9 participants.

1 4. A method as recited in claim 3, wherein the generated invitations are
2 markup language files.

1 5. A method as recited in claim 4, wherein the markup language files are
2 selected from a group consisting of Wireless Markup Language (WML),
3 Handheld Device markup Language (HDML), Extensible Markup Language
4 (XML), Hypertext Markup Language (HTML) and Compact Hypertext Markup
5 Language (cHTML).

1 6. A method as recited in claim 3, further comprising;
2 receiving responses to the invitations forwarded to the plurality of
3 selected participants; and
4 forwarding the received responses to the invitations to the coordination
5 terminal device.

1 7. A method as recited in claim 6, wherein the responses to the invitations
2 forwarded to the coordination terminal device are markup language files.

1 8. A method as recited in claim 7, wherein the markup language files are
2 selected from a group consisting of Wireless Markup Language (WML),
3 Handheld Device markup Language (HDML), Extensible Markup Language
4 (XML), Hypertext Markup Language (HTML) and Compact Hypertext Markup
5 Language (cHTML).

1 9. A method as recited in claim 3, further comprising;
2 receiving responses to the invitations forwarded to the plurality of
3 selected participants; and
4 forwarding the received responses to the invitations to a pre-designated
5 terminal device associated with the coordination terminal device.

1 10. A method as recited in claim 9, wherein the responses to the invitations
2 forwarded to the coordination terminal device are markup language files.

1 11. A method as recited in claim 10, wherein the markup language files are
2 selected from a group consisting of Wireless Markup Language (WML),
3 Handheld Device markup Language (HDML), Extensible Markup Language
4 (XML), Hypertext Markup Language (HTML) and Compact Hypertext Markup
5 Language (cHTML).

1 12. A method as recited in claim 1, wherein the retrieving contact
2 information corresponding to the timing information received for the multi-point
3 telephone conference from the selected participant contact information and
4 schedule information storage areas is accomplished using Lightweight Device
5 Access Protocol (LDAP).

1 13. A method as recited in claim 3, wherein the retrieving contact
2 information for forwarding the generated invitations, where the contact
3 information is retrieved from the contact information and schedule information
4 storage areas for the selected plurality of participants areas is accomplished
5 using Lightweight Directory Access Protocol (LDAP).

1 14. A server system providing a coordinator with remote access to a multi-
2 point telephone conferencing system including storage areas for storing
3 contact information and schedule information for a plurality of participants, a

4 multi-point telephone conference server and access to wireless and wired
5 communication networks, the system comprising:

6 a storage means for storing scheduling information for a
7 multi-point telephone conference including identification information for a
8 plurality of selected participants and timing information received from the
9 coordinator;

10 a memory means for storing a set of program instructions for
11 matching the identification information for the plurality of selected
12 participants with information contained in contact information and
13 schedule information storage areas for the plurality of selected
14 participants;

15 a processing means connected to the memory means and the
16 storage means and responsive to input received from the coordinator
17 through a communications network, whereby the scheduling information
18 and timing information is used to retrieve time sensitive contact
19 information stored in the contact information and schedule information
20 storage areas for the plurality of selected participants which is then used
21 to generate a script which may be used to control the activities of the
22 multi-point telephone conference server.

1 15. A server system as recited in claim 14, wherein the communications
2 network is a TCP/IP communications network.

1 16. A server system as recited in claim 14, wherein the communications
2 network is a wireless communications network.

1 17. A server system as recited in claim 16, wherein the wireless network is
2 selected from a group consisting of cellular digital packet data (CDPD)
3 network, General Packet Radio Service (GPRS), Global System for Mobile
4 Communication (GSM) network, cellular digital packet data (CDPD) network,

5 Code Division Multiple Access (CDMA) network, Personal Handy Phone
6 System (PHS) and Time Division Multiple Access (TDMA) network.

1 18. A server system as recited in claim 14, further comprising:
2 program code for generating invitations containing information
3 relating to the multi-point telephone conference for the plurality of
4 selected participants;
5 program code for retrieving contact information for forwarding the
6 generated invitations, where the contact information is retrieved from the
7 contact information and schedule information storage areas for the
8 selected plurality of participants; and
9 program code for forwarding the generated invitations to the
10 plurality of selected participants.

1 19. A server system as recited in claim 14, further comprising:
2 program code for receiving responses to the invitations forwarded
3 to the plurality of selected participants; and
4 program code for forwarding the received responses to the
5 invitations to the coordination terminal device.

1 20. A server system as recited in claim 14, further comprising:
2 program code for implementing a Lightweight Directory Access
3 Protocol (LDAP) software module.

1 21. A server system as recited in claim 14, further comprising:
2 program code for receiving a remote initiation command from a
3 terminal device associated with the coordinator.

1 22. A computer readable medium on which is encoded computer program
2 code for providing a coordinator with remote access to a multi-point telephone
3 conferencing system including storage areas for storing contact information

and schedule information for a plurality of participants, a multi-point telephone conference server and access to wireless and wired communication networks, the system comprising:

computer program code for receiving scheduling information for a multi-point telephone conference including identification information for a plurality of selected participants and timing information from a coordination terminal device;

computer program code for matching the received identification information for the plurality of selected participants with the contact information and schedule information storage areas for the selected plurality of participants;

computer program code for retrieving contact information corresponding to the timing information received for the multi-point telephone conference from the selected participant contact information and schedule information storage areas;

computer program code for generating and storing a control script for the multi-point telephone conference server; and

computer program code for forwarding the stored control script to the multi-point telephone conference server.

23. A computer readable medium as recited in claim 22, further comprising:

computer program code for generating invitations containing information relating to the multi-point telephone conference for the plurality of selected participants;

computer program code for retrieving contact information for forwarding the generated invitations, where the contact information is retrieved from the contact information and schedule information storage areas for the selected plurality of participants; and

computer program code for forwarding the generated invitations to the plurality of selected participants.

1 24. A computer readable medium as recited in claim 23, further comprising:
2 computer program code for receiving responses to the invitations
3 forwarded to the plurality of selected participants; and
4 computer program code for forwarding the received responses to
5 the invitations to the coordination terminal device.

1 25. In a multi-point telephone conferencing system including storage areas
2 for storing contact information and schedule information for a plurality of
3 participants, a multi-point telephone conference server and access to wireless
4 and wired communication networks, a method for coordinating a multi-point
5 telephone conference between a plurality of participants, the method
6 comprising:
7 receiving a notice of a disconnection event for one of the plurality
8 of participants;
9 retrieving contact information for one of the plurality of
10 participants;
11 generating a disconnection event response; and
12 forwarding the disconnection event response to one of the
13 plurality of participants associated with the disconnection event.

1 26. A method as recited in claim 25, wherein retrieval of the contact
2 information for one of the plurality of participants is accomplished using
3 Lightweight Device Access Protocol (LDAP).

1 27. A method as recited in claim 25, wherein the disconnection event
2 response is a markup language file.

1 28. A method as recited in claim 27, wherein the markup language file is
2 selected from a group consisting of Wireless Markup Language (WML),
3 Handheld Device Markup Language (HDML), Extensible Markup Language

(XML), Hypertext Markup Language (HTML) and Compact Hypertext Markup Language (cHTML).

29. A method as recited in claim 25, further comprising;
receiving reconnection instructions from one of the plurality of participants associated with the disconnection event;
generating a reconnection control script for a multi-point telephone conference server in response to the received reconnection instructions; and
forwarding the reconnection control script to the multi-point telephone conference server.

30. A method as recited in claim 29, wherein the reconnection instructions received from one of the plurality of participants associated with the disconnection event is contained in a markup language file.

31. A method as recited in claim 30, wherein the markup language is selected from a group consisting of Wireless Markup Language (WML), Handheld Device Markup Language (HDML), Extensible Markup Language (XML), Hypertext Markup Language (HTML) and Compact Hypertext Markup Language (cHTML).

32. A coordinating server system for remotely controlling a multi-point telephone conferencing system including storage areas for storing contact information and schedule information for a plurality of participants, a multi-point telephone conference server and access to wired and wireless communication networks, the system comprising:
a storage means for storing scheduling information for a multi-point telephone conference including identification information for a plurality of selected participants and timing information received from the coordinating server system;

10 a memory means for storing a set of program instructions for
11 matching the identification information for the plurality of selected
12 participants with information contained in contact information and
13 schedule information storage areas for the plurality of selected
14 participants;
15 a processing means connected to the memory means and the
16 storage means and responsive to input received from the coordinating
17 server system through a communications network, whereby the
18 scheduling information and timing information is used to retrieve time
19 sensitive contact information stored in the contact information and
20 schedule information storage areas for the plurality of selected
21 participants which is then used to generate a script which may be used
22 to re-establish communications links when an indication of link
23 termination is received for one or more of the plurality of selected
24 participants.

1 33. A coordinating server system as recited in claim 32, wherein the wired
2 communications network is a TCP/IP communications network.

1 34. A coordinating server system as recited in claim 32, wherein the
2 wireless network is selected from a group consisting of cellular digital packet
3 data (CDPD) network, Global System for Mobile Communication (GSM)
4 network, General Packet Radio Service (GPRS), Code Division Multiple
5 Access (CDMA) network, Personal Handy Phone System (PHS), General
6 Packet Radio Service (GPRS) and Time Division Multiple Access (TDMA)
7 network.

1 35. In a multi-point telephone conferencing system including storage areas
2 for storing contact information and schedule information for a plurality of
3 participants, a multi-point telephone conference server and access to wireless
4 and wired communication networks, a method for coordinating a multi-point

5 telephone conference between a plurality of participants, the method
6 comprising:
7 receiving a first set of association information for a first group of
8 selected participants from the plurality of participants where the first set
9 of association information identifies participants as belonging to a
10 primary telephone conference group and one or more secondary
11 telephone conference groups;
12 retrieving connection criteria associated with the first group of
13 selected participants;
14 generating telephone conference invitations corresponding to the
15 retrieved connection criteria for the first group of selected participants;
16 retrieving contact information for the first group of selected
17 participants; and
18 forwarding the telephone conference invitations to the first group
19 of selected participants.

1 36. A method as recited in claim 35, wherein retrieval of contact information
2 for the first group of selected participants is accomplished using Lightweight
3 Device Access Protocol (LDAP).

1 37. A method as recited in claim 35, wherein the telephone conference
2 invitations are incorporated in a markup language file.

1 38. A method as recited in claim 37, wherein the markup language file is
2 selected from a group consisting of Wireless Markup Language (WML),
3 Handheld Device Markup Language (HDML), Extensible Markup Language
4 (XML), Hypertext Markup Language (HTML) and Compact Hypertext Markup
5 Language (cHTML).

1 39. A method as recited in claim 35, wherein the connection criteria is based
2 on the scheduled time for the telephone conferences associated with the

3 primary telephone conference group and the one or more secondary telephone
4 conference groups.

1 40. A method as recited in claim 35, further comprising;
2 receiving a second set of association information for a second
3 group of selected participants from the plurality of participants where the
4 second set of association information identifies participants as belonging
5 to one or more secondary telephone conference groups;
6 retrieving connection criteria associated with the second group of
7 selected participants;
8 generating telephone conference invitations corresponding to the
9 retrieved connection criteria associated with the second group of
10 selected participants;
11 retrieving contact information for the second group of selected
12 participants; and
13 forwarding the telephone conference invitations to the second
14 group of selected participants.

1 41. A method as recited in claim 40, further comprising;
2 receiving invitation responses to the telephone conference
3 invitations from the first group of selected participants and the second
4 group of selected participants;
5 generating a control script for a multi-point telephone conference
6 server in response to the received invitation responses; and
7 forwarding the generated control script to the multi-point
8 telephone conference server.

1 42. A coordinating server system for remotely controlling a multi-point
2 telephone conferencing system including storage areas for storing contact
3 information and schedule information for a plurality of participants, a multi-point

4 telephone conference server and access to wireless and wired communication
5 networks, the system comprising:

6 a storage means for storing scheduling information for primary
7 and secondary multi-point telephone conferences including identification
8 information for a plurality of selected participants and timing information
9 received from the coordinating server system;

10 a memory means for storing a set of program instructions for
11 matching the identification information for the plurality of selected
12 participants with information contained in contact information and
13 schedule information storage areas for the plurality of selected
14 participants;

15 a processing means connected to the memory means and the
16 storage means and responsive to input received from the coordinating
17 server system through a communications network, whereby the
18 scheduling information and timing information is used to retrieve time
19 sensitive contact information stored in the contact information and
20 schedule information storage areas for the plurality of selected
21 participants which is then used to generate a script which may be used
22 to connect selected participants to assigned primary and secondary
23 telephone conferences.

1 43. A coordinating server system as recited in claim 42, wherein the
2 communications network is a TCP/IP communications network.

1 44. A coordinating server system is recited in claim 42, wherein the wireless
2 network is selected from a group consisting of cellular digital packet data
3 (CDPD) network, Global System for Mobile Communication (GSM) network,
4 General Packet Radio Service (GPRS), Code Division Multiple Access (CDMA)
5 network, Personal Handy Phone System (PHS), General Packet Radio Service
6 (GPRS) and Time Division Multiple Access (TDMA) network.

1 45. A coordinating server system for remotely controlling a multi-point
2 telephone conferencing system including storage areas for storing contact
3 information and schedule information for a plurality of participants, a multi-point
4 telephone conference server and access to wireless and wired communication
5 networks, the system comprising:

6 a storage means for storing scheduling information for a multi-
7 point telephone conference including identification information for a
8 plurality of selected participants and timing information received from the
9 coordinating server system;

10 a memory means for storing a set of program instructions for
11 matching the identification information for the plurality of selected
12 participants with information contained in contact information and
13 schedule information storage areas for the plurality of selected
14 participants;

15 a processing means connected to the memory means and the
16 storage means and responsive to input received from the coordinating
17 server system through a communications network, whereby the
18 scheduling information and timing information is used to retrieve time
19 sensitive contact information stored in the contact information and
20 schedule information storage areas for the plurality of selected
21 participants which is used to forward a targeted request for reconnection
22 instructions when an indication of a link termination event is received for
23 one or more of the plurality of selected participants.

1 46. A coordinating server system as recited in claim 45, wherein the wired
2 communications network is a TCP/IP communications network.

1 47. A coordinating server system as recited in claim 45, wherein the
2 wireless network is selected from a group consisting of cellular digital packet
3 data (CDPD) network, Global System for Mobile Communication (GSM)
4 network, General Packet Radio Service (GPRS), Code Division Multiple

5 Access (CDMA) network, Personal Handy Phone System (PHS) and Time
6 Division Multiple Access (TDMA) network.

1 48. A coordinating server system as recited in claim 45, further comprising:
2 program code for receiving reconnection instructions from one or
3 more of the plurality of selected participants associated with the
4 indication of a link termination event;
5 program code for retrieving contact information from the contact
6 information and schedule information storage areas for the one or more
7 of the plurality of selected participants associated with the indication of a
8 link termination event; and
9 program code for generating a script which may be used to re-
10 establish communications links for the one or more of the plurality of
11 selected participants associated with the indication of a link termination
12 event.

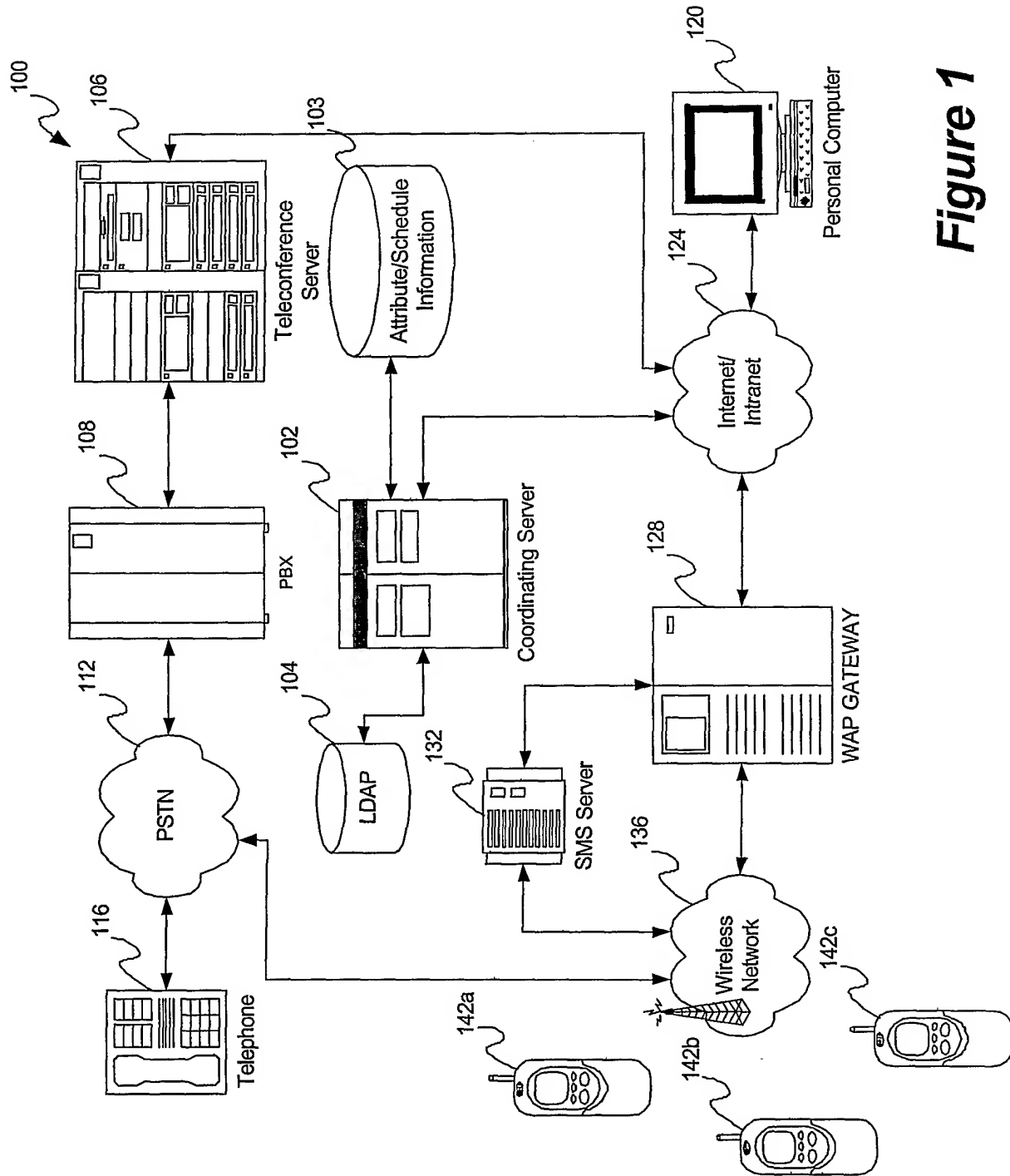
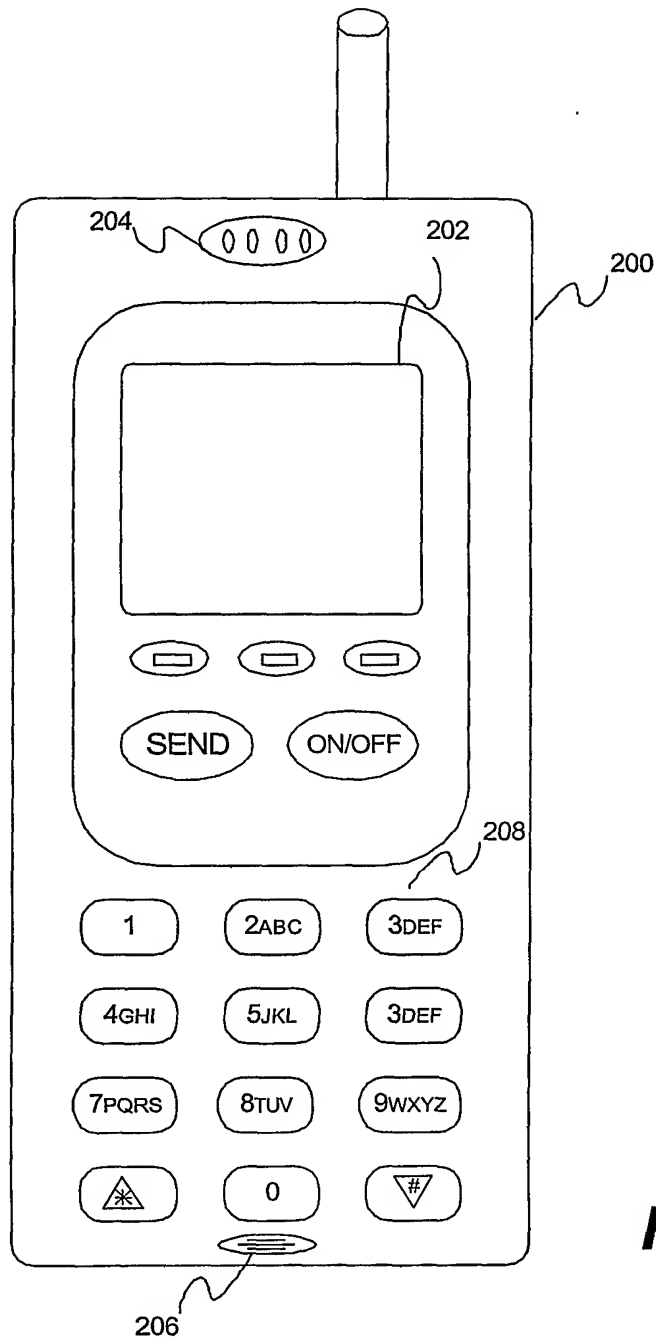


Figure 1

**Figure 2A**

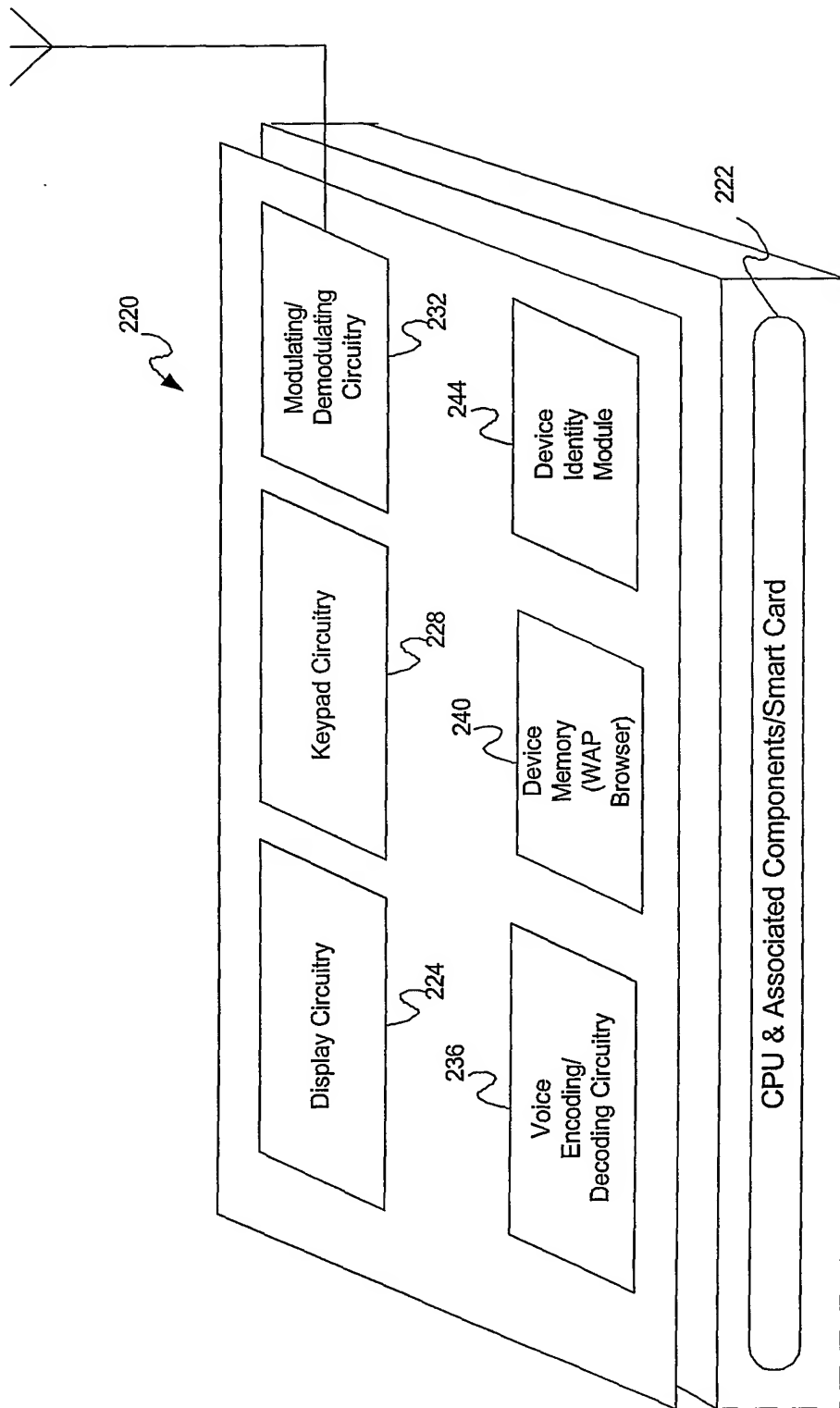


Figure 2B

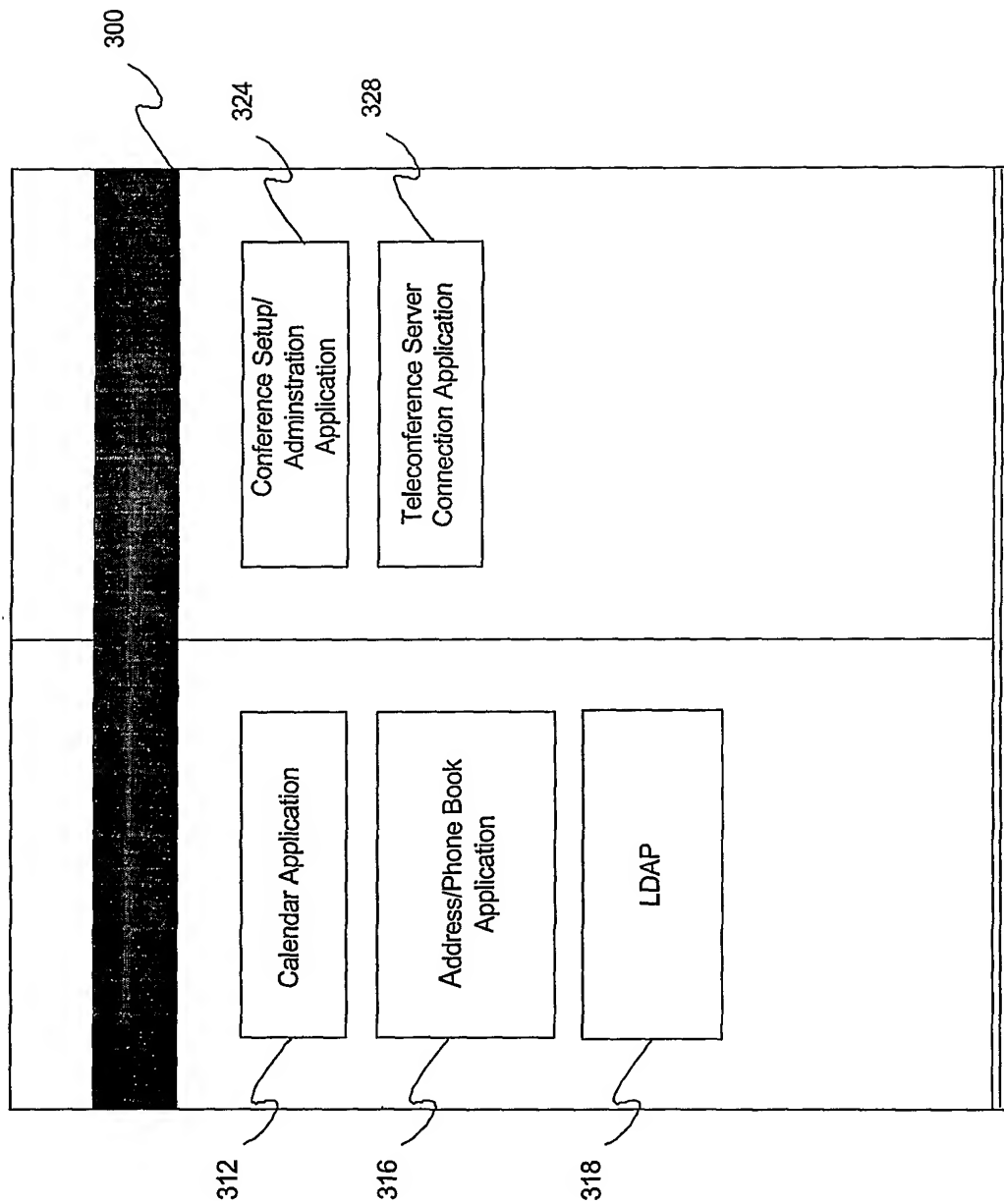


Figure 3







TELECONFERENCE MEETING PLANNER	TELECONFERENCE TITLE	
<div>Save </div> <div>New </div> <div>Call </div> <div>Print </div> <div>Propose </div> <div>Close </div>	<div>Chess Club Meeting</div> <div>Date (mm/dd/yyyy): 12/25/1999</div> <div>MEMBER #1</div> <div>Name: Spasky</div> <div>e-mail: spasky@chessclub.com</div> <div>Phone1: 650-555-1000</div> <div>Phone2: 650-555-1001</div> <div>Phone3:</div> <div>MEMBER #2</div> <div>Name: Fisher</div> <div>e-mail: bobby@chessclub.com</div> <div>Phone1: 650-555-1200</div> <div>Phone2: 650-555-1201</div> <div>Phone3: 650-555-1202</div> <div>MEMBER #3</div> <div>Name: Carpenter</div> <div>e-mail: thing@aol.com</div> <div>Phone1: 519-555-1321</div> <div>Phone2:</div> <div>Phone3:</div> <div>MEMBER #4</div> <div>Name: Pi</div> <div>e-mail: pi314@engineer.com</div> <div>Phone1:</div> <div>Phone2:</div> <div>Phone3:</div> <div>MEMBER #5</div> <div>Name: Aronofsky</div> <div>e-mail: two16@chessclub.com</div> <div>Phone1: 650-555-1500</div> <div>Phone2:</div> <div>Phone3:</div>	<div>Primary Time: 1:30 <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM</div> <div>Secondary Time: 4:30 <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM</div> <div>Length (hrs): 3 Subgroup: <input checked="" type="checkbox"/></div> <div><input type="checkbox"/> USE PHONE NUMBER GIVEN</div> <div><input checked="" type="checkbox"/> SMART LOOK SUBGROUP</div> <div><input type="checkbox"/> USE PHONE NUMBER GIVEN</div> <div><input checked="" type="checkbox"/> SMART LOOK SUBGROUP</div> <div><input type="checkbox"/> USE PHONE NUMBER GIVEN</div> <div><input checked="" type="checkbox"/> SMART LOOK SUBGROUP</div> <div><input type="checkbox"/> USE PHONE NUMBER GIVEN</div> <div><input checked="" type="checkbox"/> SMART LOOK SUBGROUP</div> <div><input checked="" type="checkbox"/> USE PHONE NUMBER GIVEN</div> <div><input type="checkbox"/> SMART LOOK SUBGROUP</div>

Figure 4A

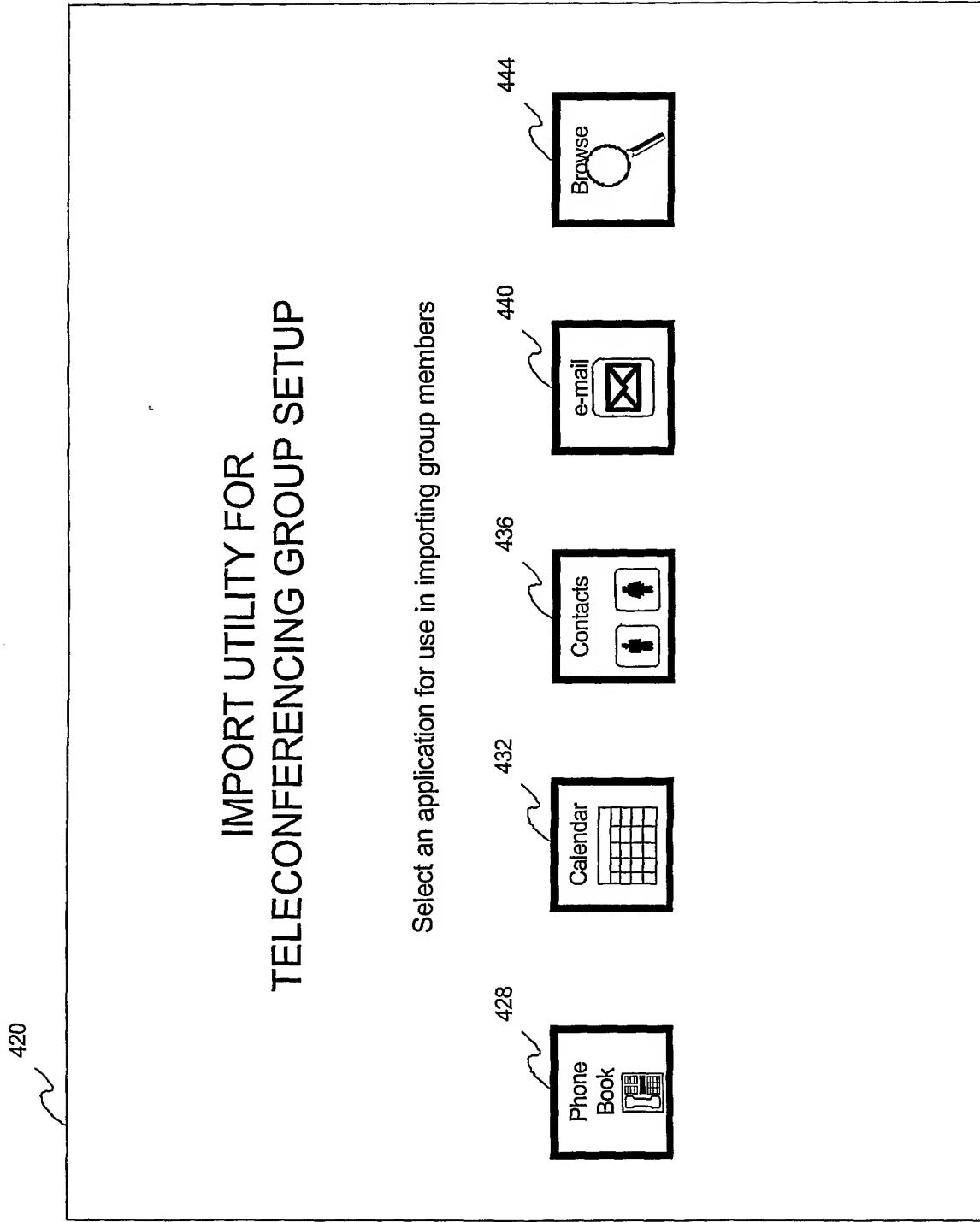
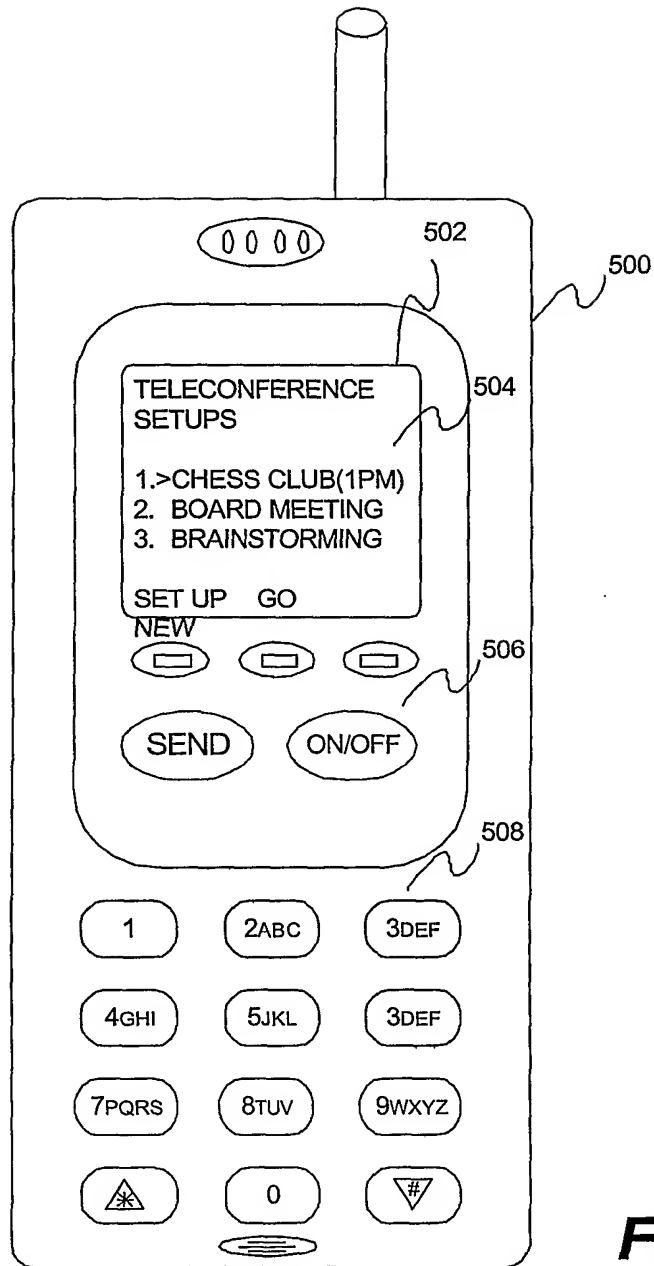


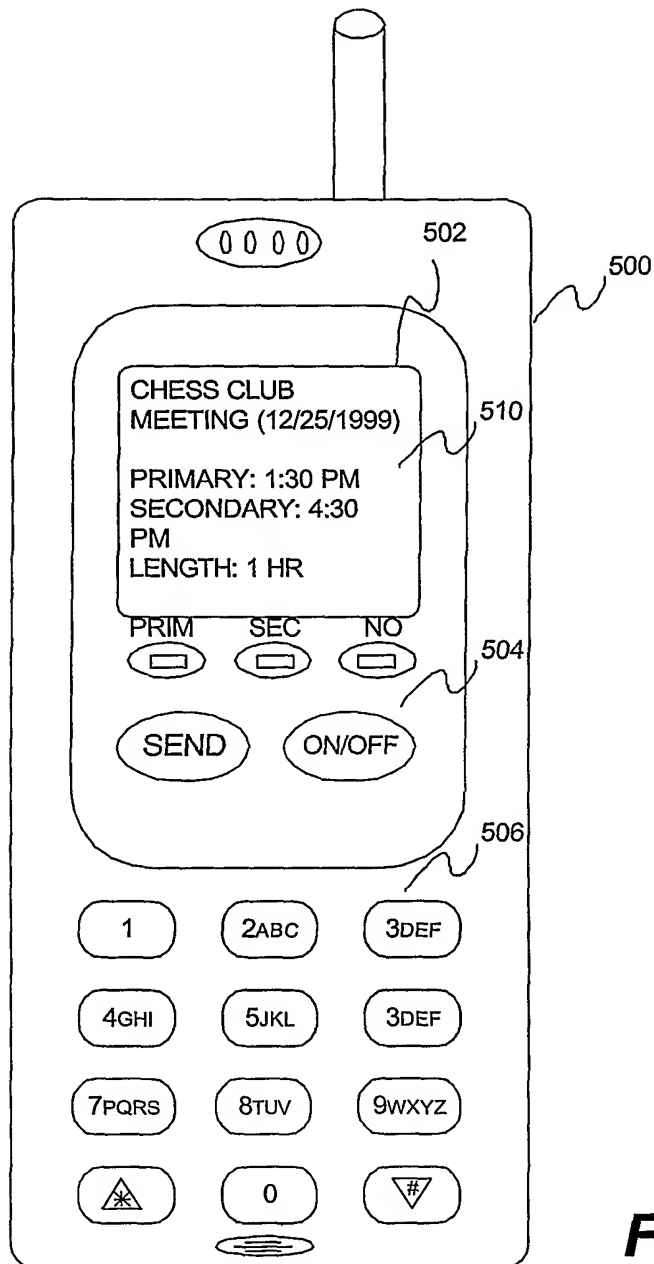
Figure 4B

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<p>Group Name: <input style="width: 100%;" type="text" value="Chess Club Meeting"/></p> <p>Group Description: <div style="border: 1px solid black; padding: 5px; min-height: 50px;"> Planning for upcoming tournament in Washington, D.C. </div> </p> <p>Added Members <div style="border: 1px solid black; padding: 5px; min-height: 100px;"> Aronofsky Carpenter </div> </p>	<div style="text-align: center; margin-bottom: 10px;"> Phone Book </div> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border: 1px solid black; padding: 5px; vertical-align: top;"> 12. Darren K. Aronofsky </td> <td style="width: 70%; border: 1px solid black; padding: 5px; vertical-align: top;"> <table style="width: 100%;"> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Home: 650-555-1500</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Work: 650-555-1501</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Mobile: 650-555-1502</td> </tr> </table> </td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; vertical-align: top;"> 13. Kim T. Barron </td> <td style="border: 1px solid black; padding: 5px; vertical-align: top;"> <table style="width: 100%;"> <tr> <td style="width: 10px; text-align: center;"><input type="checkbox"/></td> <td>Home: 650-555-3500</td> </tr> <tr> <td style="width: 10px; text-align: center;"><input type="checkbox"/></td> <td>Work: 650-555-3501</td> </tr> <tr> <td style="width: 10px; text-align: center;"><input type="checkbox"/></td> <td>Mobile: 650-555-3502</td> </tr> </table> </td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; vertical-align: top;"> 14. John W. Carpenter </td> <td style="border: 1px solid black; padding: 5px; vertical-align: top;"> <table style="width: 100%;"> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Home: 650-555-1300</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Work: 650-555-1301</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Mobile: 650-555-1302</td> </tr> </table> </td> </tr> </table> <div style="text-align: center; margin-top: 10px;"> </div>	12. Darren K. Aronofsky	<table style="width: 100%;"> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Home: 650-555-1500</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Work: 650-555-1501</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Mobile: 650-555-1502</td> </tr> </table>	■	Home: 650-555-1500	■	Work: 650-555-1501	■	Mobile: 650-555-1502	13. Kim T. Barron	<table style="width: 100%;"> <tr> <td style="width: 10px; text-align: center;"><input type="checkbox"/></td> <td>Home: 650-555-3500</td> </tr> <tr> <td style="width: 10px; text-align: center;"><input type="checkbox"/></td> <td>Work: 650-555-3501</td> </tr> <tr> <td style="width: 10px; text-align: center;"><input type="checkbox"/></td> <td>Mobile: 650-555-3502</td> </tr> </table>	<input type="checkbox"/>	Home: 650-555-3500	<input type="checkbox"/>	Work: 650-555-3501	<input type="checkbox"/>	Mobile: 650-555-3502	14. John W. Carpenter	<table style="width: 100%;"> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Home: 650-555-1300</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Work: 650-555-1301</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Mobile: 650-555-1302</td> </tr> </table>	■	Home: 650-555-1300	■	Work: 650-555-1301	■	Mobile: 650-555-1302
12. Darren K. Aronofsky	<table style="width: 100%;"> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Home: 650-555-1500</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Work: 650-555-1501</td> </tr> <tr> <td style="width: 10px; text-align: center;">■</td> <td>Mobile: 650-555-1502</td> </tr> </table>	■	Home: 650-555-1500	■	Work: 650-555-1501	■	Mobile: 650-555-1502																		
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<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>462</p> <div style="border: 1px solid black; padding: 5px; width: 60px;"> </div> <p>Calendar</p> </div> <div style="text-align: center;"> <p>464</p> <div style="border: 1px solid black; padding: 5px; width: 60px;"> </div> <p>Contacts</p> </div> <div style="text-align: center;"> <p>468</p> <div style="border: 1px solid black; padding: 5px; width: 60px;"> </div> <p>e-mail</p> </div> <div style="text-align: center;"> <p>472</p> <div style="border: 1px solid black; padding: 5px; width: 60px;"> </div> <p>Browse</p> </div> <div style="text-align: center;"> <p>476</p> <div style="border: 1px solid black; padding: 5px; width: 60px;"> </div> <p>Save</p> </div> </div>																									

Figure 4C

**Figure 5A**

**Figure 5B**

Daily Contact Calendar for

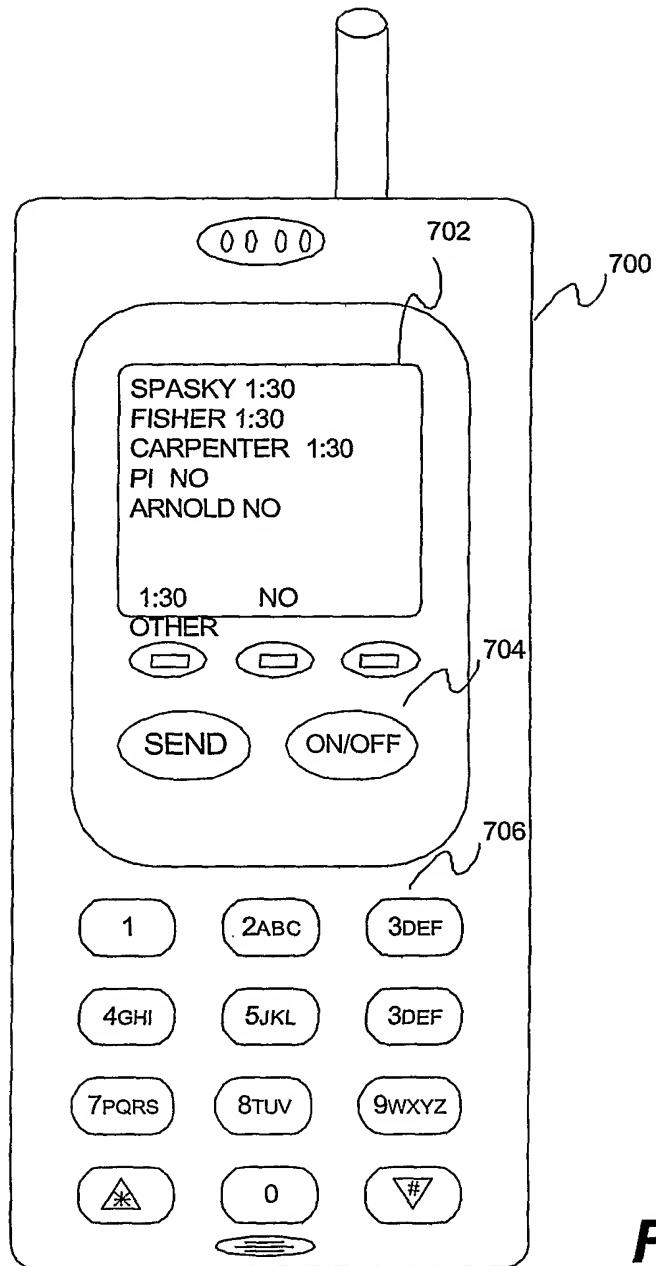
Brian Spasky

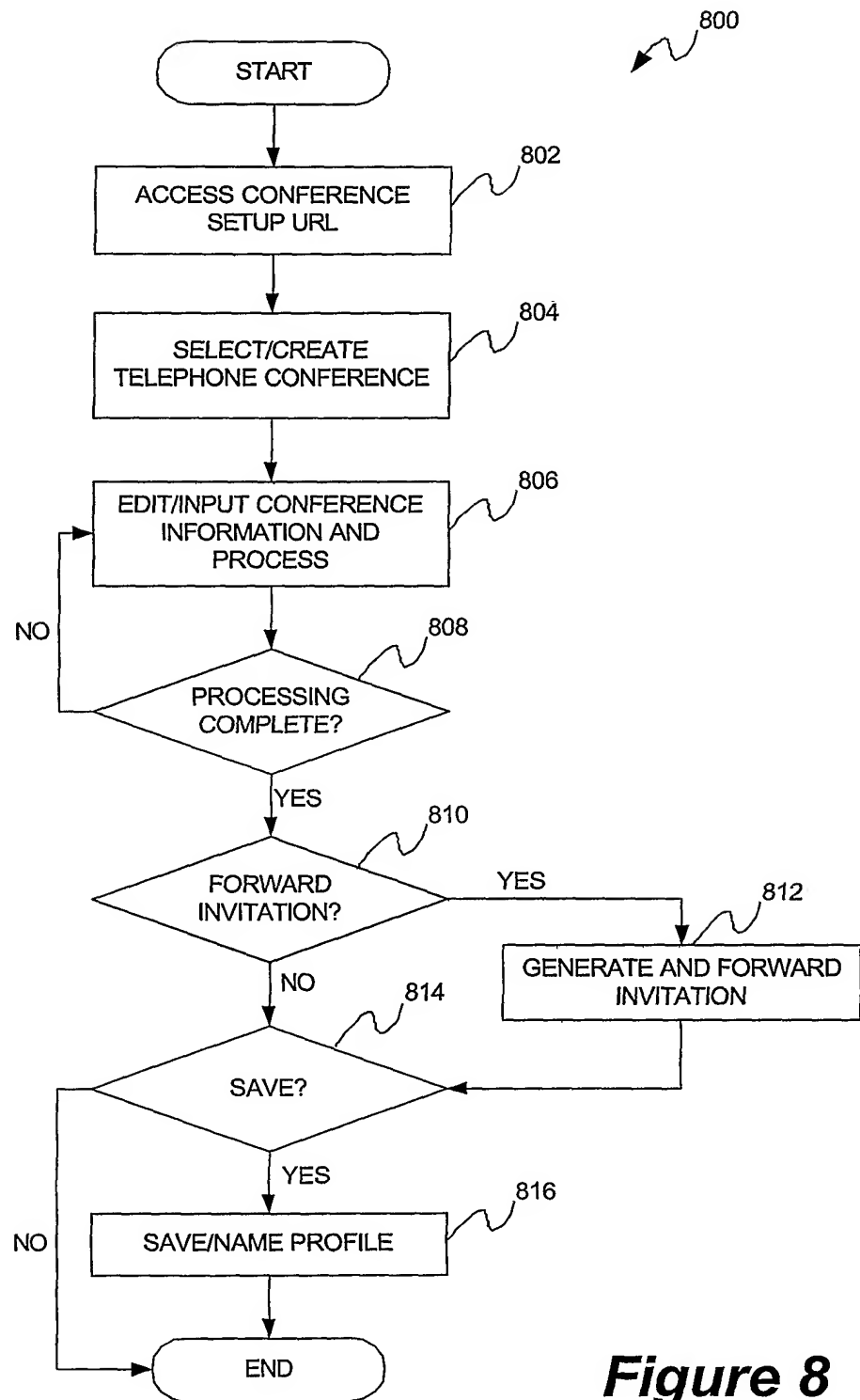
Primary Contact Number:

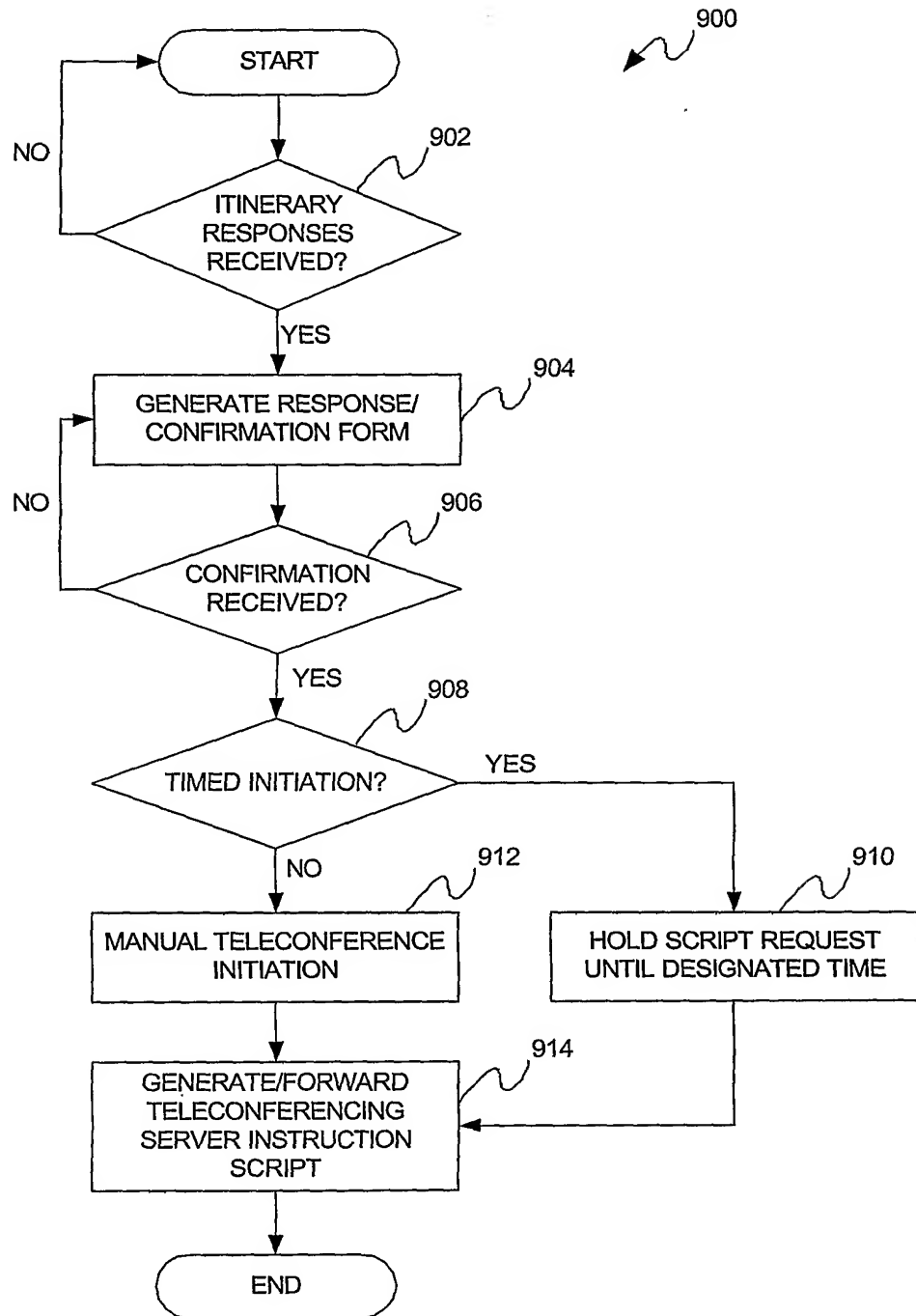
First Alternate Number:	<input style="width: 100%;" type="text" value="650-555-1065"/>	Date (mm/dd/yyyy):	<input style="width: 100%;" type="text" value="12/25/1999"/>
Start Time:	<input style="width: 100%;" type="text" value="1:30"/>	AM <input type="checkbox"/> PM <input checked="" type="checkbox"/>	
End Time:	<input style="width: 100%;" type="text" value="4:00"/>	AM <input type="checkbox"/> PM <input checked="" type="checkbox"/>	

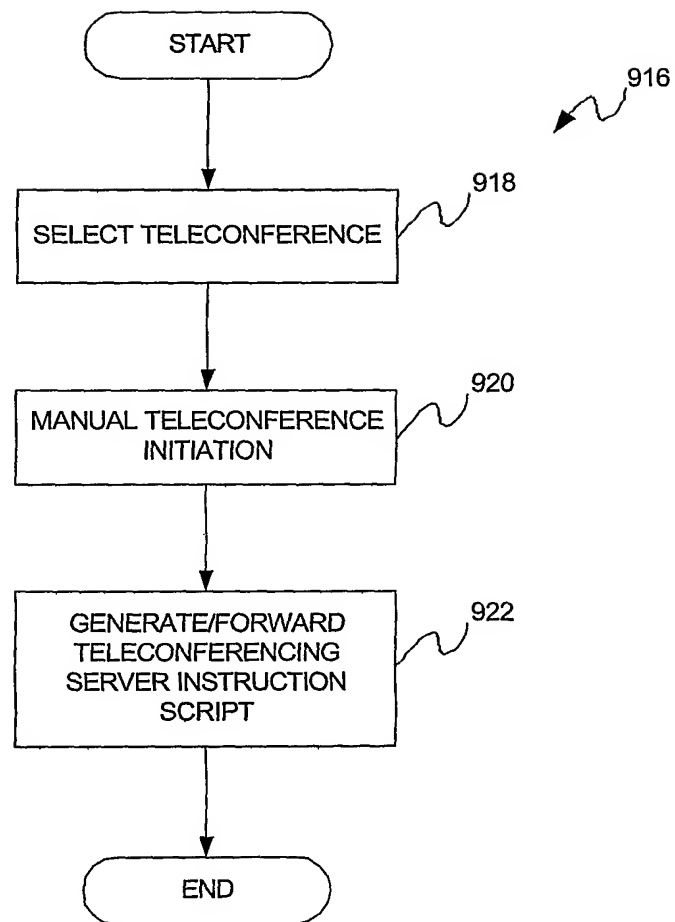
Second Alternate Number:	<input style="width: 100%;" type="text" value="650-555-1211"/>	Date (mm/dd/yyyy):	<input style="width: 100%;" type="text" value="12/25/1999"/>
Start Time:	<input style="width: 100%;" type="text" value="6:30"/>	AM <input type="checkbox"/> PM <input checked="" type="checkbox"/>	
End Time:	<input style="width: 100%;" type="text" value="7:00"/>	AM <input type="checkbox"/> PM <input checked="" type="checkbox"/>	

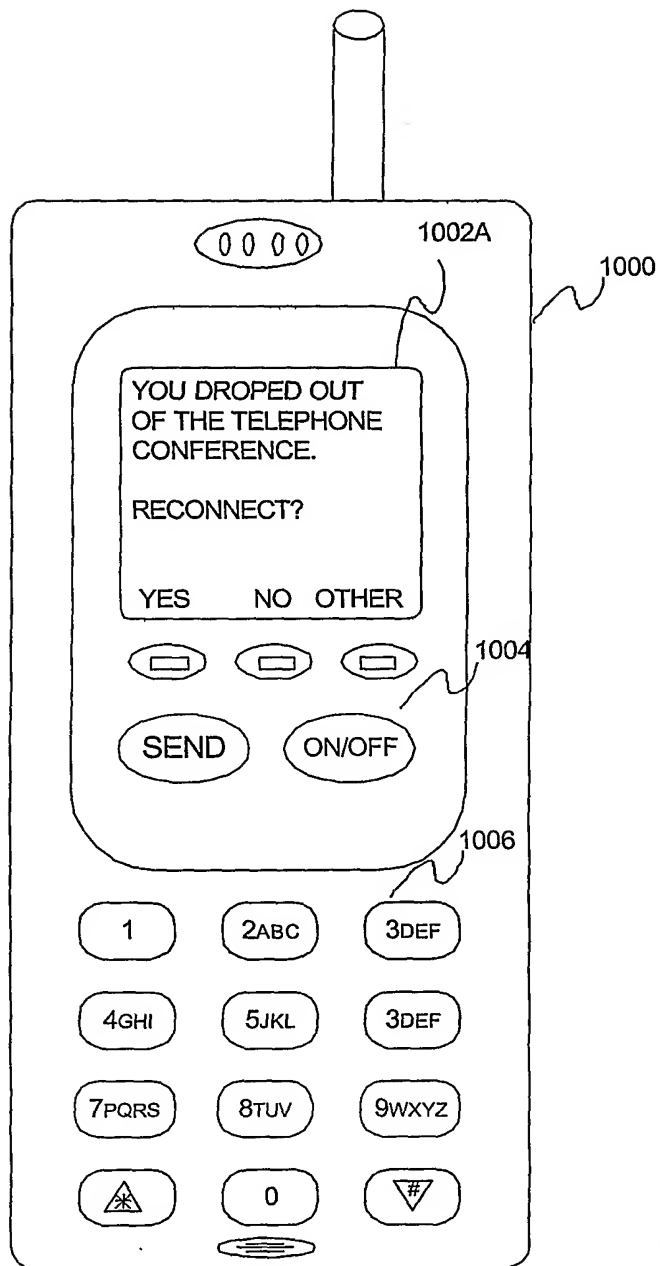
Figure 6

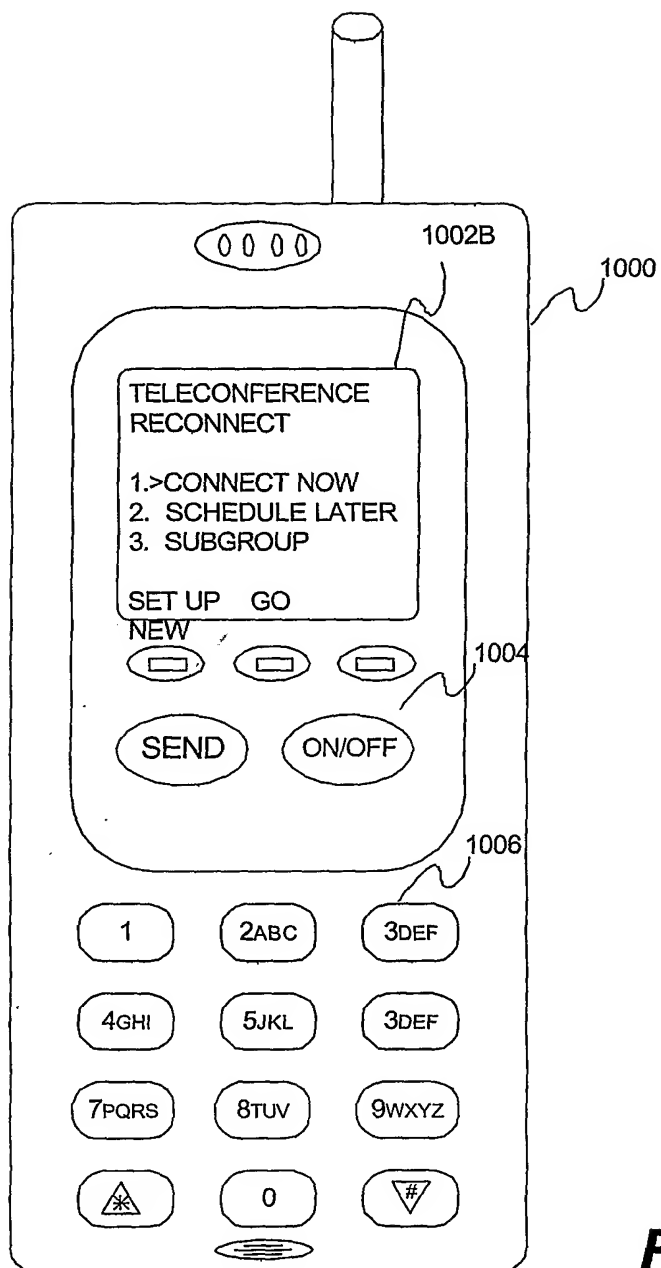
**Figure 7**

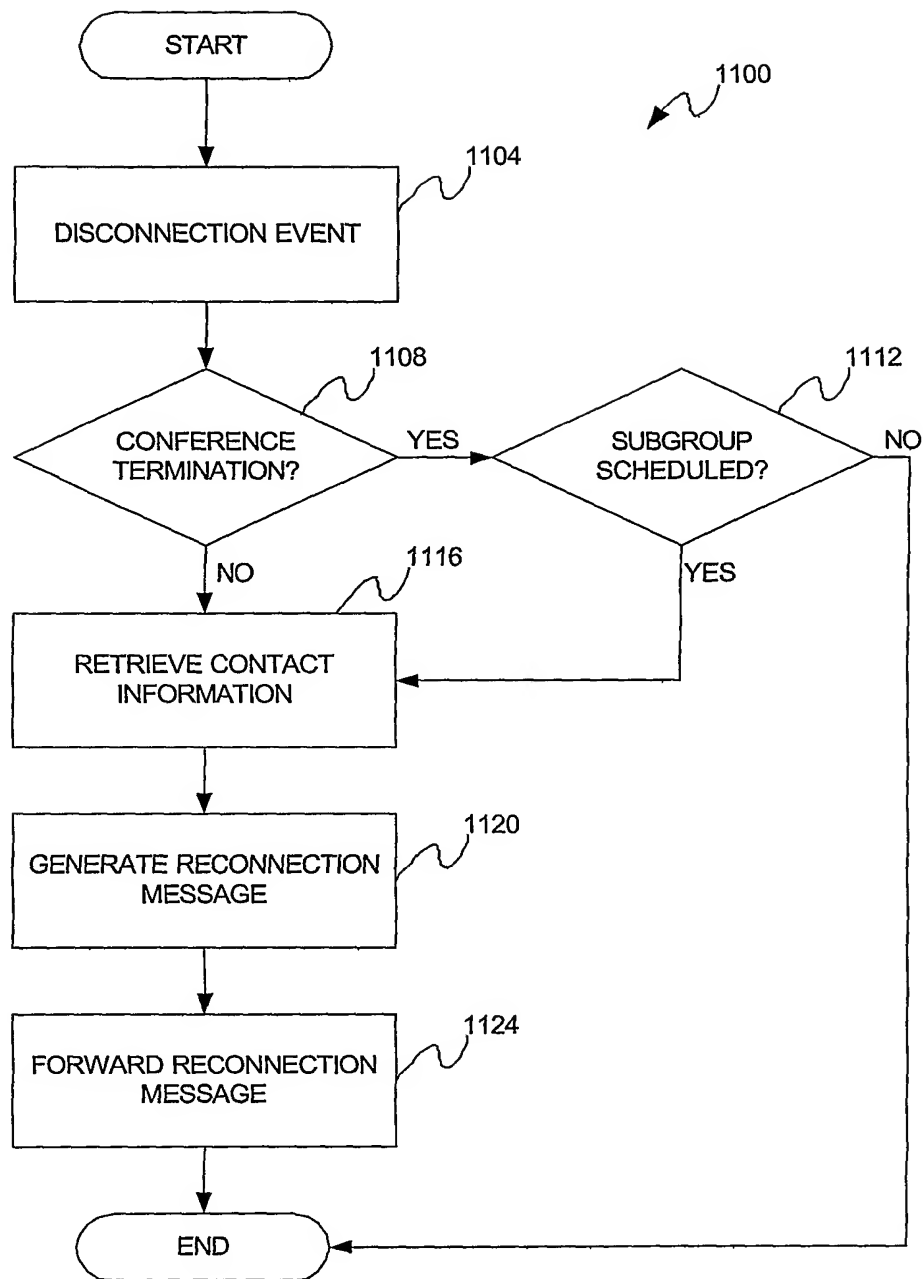


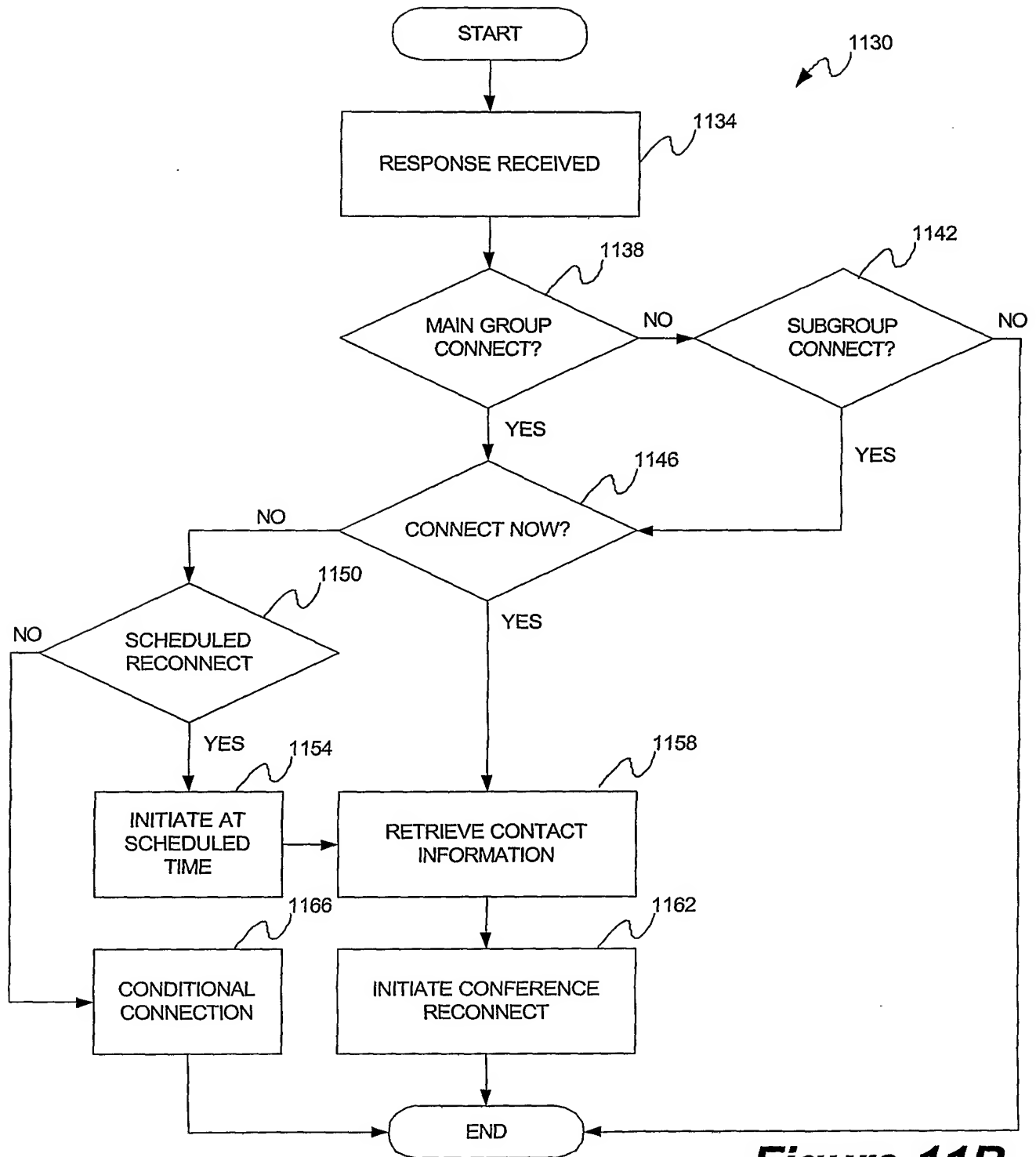
**Figure 9A**

**Figure 9B**

**Figure 10A**

**Figure 10B**

**Figure 11A**

**Figure 11B**

INTERNATIONAL SEARCH REPORT

Inter I Application No
PCT/US 00/10998

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04M3/56 H04M3/432 G06F17/60 H04L12/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04M G06F H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 872 841 A (YUNG CHOW JACKSON HSI ET AL) 16 February 1999 (1999-02-16) abstract; figures 1,2,12 column 1, line 27-40 column 2, line 27 -column 3, line 59 column 11, line 29-64	1-21
Y	EP 0 969 687 A (AT & T CORP) 5 January 2000 (2000-01-05) abstract; figure 1 page 3, line 6-49 page 4, line 2-27	1-21

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

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"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

6 July 2000

Date of mailing of the international search report

03.01.01

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
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Fax: (+31-70) 340-3016

Authorized officer

Nash, M

INTERNATIONAL SEARCH REPORT

Interi Application No

PCT/US 00/10998

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>WO 97 34406 A (BRITISH TELECOMM ;MORLEY MICHAEL CHARLES (GB); WILD DAVID RAYMOND) 18 September 1997 (1997-09-18) abstract; claims 1-6; figures 1-4 page 1, line 20-27 page 3, line 31 -page 4, line 8 page 6, line 1-7 page 5, line 4 -page 7, line 24 ---</p>	1,2, 14-17,21
Y	<p>"CALENDAR SCHEDULING TELECONFERENCE COMMUNICATION MECHANISM" IBM TECHNICAL DISCLOSURE BULLETIN,US,IBM CORP. NEW YORK, vol. 37, no. 3, 1 March 1994 (1994-03-01), page 561 XP000441585 ISSN: 0018-8689 the whole document ---</p>	1,2, 14-17,21
A	<p>US 5 933 778 A (MONTEMAYOR JANE ELIZABETH ET AL) 3 August 1999 (1999-08-03) abstract; figures 1-11 column 1, line 19 -column 4, line 47 ---</p>	1-21
A	<p>EP 0 921 670 A (SIEMENS INF & COMM NETWORKS) 9 June 1999 (1999-06-09) abstract; figures 1,3-6 column 2, line 6-44 column 3, line 16 -column 7, line 58 -----</p>	1-21

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/10998

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: **22-24**
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(vi) PCT - Program for computers
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-21

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-21

In a multi-point telephone conferencing system including storage areas for storing contact information and schedule information for a plurality of participants, a multi-point telephone conference server and access to wireless and wired communication networks, a method for setting up a multi-point telephone conference between a plurality of participants, method comprising:

- receiving scheduling information for a multi-point telephone conference including identification information for a plurality of selected participants receiving timing information from a coordination terminal device;

- matching the received identification information for the plurality of selected participants with the contact information and schedule information storage areas for the selected plurality of participants;

- retrieving contact information corresponding to the timing information received for the multi-point telephone conference from the selected participant contact information and schedule information storage areas;

- generating and storing a control script for the multi-point telephone conference server; and

- forwarding the stored control script to the multi-point telephone conference server.

2. Claims: 25-31

In a multi-point telephone conferencing system including storage areas for storing contact information and schedule information for a plurality of participants, a multi-point telephone conference server and access to wireless and wired communication networks, a method for setting up a multi-point telephone conference between a plurality of participants, method comprising:

- receiving notice of a disconnection event for one of the plurality of participants;

- receiving contact information for one of the plurality of participants;

- generating a disconnection event response; and

- forwarding the disconnection event response to one of the plurality of participants associated with the disconnection event.

3. Claims: 32-34

A coordinating server system for remotely controlling a multi-point telephone conferencing system including storage areas for storing contact information and schedule information for a plurality of participants, a multi-point telephone conference server and access to wired and wireless communication networks, the system comprising:

- a storage means for storing scheduling information for a

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

multipoint telephone conference including identification information for a plurality of selected participants and timing information received from the coordinating server system;
a memory means for storing a set of program instructions for matching the identification information for the plurality of selected participants with information contained in contact information and schedule information storage areas for the plurality of selected participants;
a processing means connected to the memory means and the storage means and responsive to input received from the coordinating server system through a communications network, whereby the scheduling information and timing information is used to retrieve time sensitive contact information stored in the contact information and schedule information storage areas for the plurality of selected participants which is then used to generate a script which may be used to re-establish communications links when an indication of link termination is received for one or more of the plurality of selected participants.

4. Claims: 35-41

In a multi-point telephone conferencing system including storage areas for storing contact information and schedule information for a plurality of participants, a multi-point telephone conference server and access to wireless and wired communication networks, a method for coordinating a multi-point telephone conference between a plurality of participants, the method comprising:
receiving a first set of association information for a first group of selected participants from the plurality of participants where the first set of association information identifies participants as belonging to a primary telephone conference group and one or more secondary telephone conference groups;
retrieving connection criteria associated with the first group of selected participants;
generating telephone conference invitations corresponding to the retrieved connection criteria for the first group of selected participants;
retrieving contact information for the first group of selected participants; and
forwarding the telephone conference invitations to the first group of selected participants.

5. Claims: 42-44

A coordinating server system for remotely controlling a multi-point telephone conferencing system including storage areas for storing contact information and schedule information for a plurality of participants, a multi-point telephone conference server and access to wireless and wired

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

communication networks, the system comprising:
a storage means for storing scheduling information for primary and secondary multi-point telephone conferences including identification information for a plurality of selected participants and timing information received from the coordinating server system;
a memory means for storing a set of program instructions for matching the identification information for the plurality of selected participants with information contained in contact information and schedule information storage areas for the plurality of selected participants;
a processing means connected to the memory means and the storage means and responsive to input received from the coordinating server system through a communications network, whereby the scheduling information and timing information is used to retrieve time sensitive contact information stored in the contact information and schedule information storage areas for the plurality of selected participants which is then used to generate a script which may be used to connect selected participants to assigned primary and secondary telephone conferences.

6. Claims: 45-48

A coordinating server system for remotely controlling a multi-point telephone conferencing system including storage areas for storing contact information and schedule information for a plurality of participants, a multi-point telephone conference server and access to wireless and wired communication networks, the system comprising:
a storage means for storing scheduling information for a multipoint telephone conference including identification information for a plurality of selected participants and timing information received from the coordinating server system;
a memory means for storing a set of program instructions for matching the identification information for the plurality of selected participants with information contained in contact information and schedule information storage areas for the plurality of selected participants;
a processing means connected to the memory means and the storage means and responsive to input received from the coordinating server system through a communications network, whereby the scheduling information and timing information is used to retrieve time sensitive contact information stored in the contact information and schedule information storage areas for the plurality of selected participants which is used to forward a targeted request for reconnection instructions when an indication of a link termination event is received for one or more of the plurality of selected participants.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inter: Application No

PCT/US 00/10998

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5872841 A	16-02-1999	CN 1236519 A EP 1013058 A WO 9821870 A	24-11-1999 28-06-2000 22-05-1998
EP 0969687 A	05-01-2000	NONE	
WO 9734406 A	18-09-1997	AU 2103597 A CA 2247008 A EP 0886951 A JP 2000506359 T US 5848132 A	01-10-1997 18-09-1997 30-12-1998 23-05-2000 08-12-1998
US 5933778 A	03-08-1999	BR 9702279 A CA 2228169 A EP 0852871 A JP 10512134 T NO 980461 A WO 9747120 A	20-07-1999 11-12-1997 15-07-1998 17-11-1998 03-02-1998 11-12-1997
EP 0921670 A	09-06-1999	US 6104788 A	15-08-2000